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THE

BIRMINGHAM MEDICAL REVIEW:

A MONTHLY JOURNAL
OF
THE MEDICAL SCIENCES.

EDITED BY
JAS. W. RUSSELL, M.D. CANTAB., M.R.C.P.
AND
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THE
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ORIGINAL COMMUNICATIONS.

DIRECT OBSERVATION AS AN AID TO DIAGNOSIS IN DISEASES OF THE BLADDER AND KIDNEY.*

BY GILBERT BARLING, M.B., B.S., F.R.C.S.,
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THE ordinary methods of investigating diseases of the bladder and kidney are numerous. Examination of the urine for blood, albumen, casts, tubercle bacilli, fragments of growth, etc., is of course a matter of routine and of the highest value. We have also the catheter, the sound, palpation by the rectum or vagina, and what is sometimes forgotten, bi-manual palpation with the assistance of anæsthesia if this seems advisable. Information may also be obtained from examination of other parts and organs, as, for instance, of the epididymis for tubercular nodules, or by interrogating the history as in hæmophilic hæmorrhage.

By these means the diagnosis of the majority of cases is solved and appropriate treatment follows, but in a minority of cases the information necessary for a diagnosis is still wanting, and treatment is a mere shot in the dark, and as a result often fails to give relief. In a certain number of cases, to clear up the difficulty it was necessary a few years ago to perform an exploratory operation, perineal section, to allow of the finger being introduced into the bladder to settle whether the disease was located here or higher up the urinary passages.

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* Read at a Meeting of the Shropshire and Mid-Wales Branch of the British Medical Association.

At the present time there are advocates of exploration of the second kidney before operating on the one suspected, to determine whether a second organ exists, and if it does what is its condition. I do not wish to absolutely condemn exploratory operations, but I am sure that they are rarely called for. By less formidable means we may obtain as valuable and often more valuable information. Placing oneself in the position of the patient, how intensely discouraging it must be to learn that an operation has first to be performed to gain information, and to be followed by a second to attack the disease. If exploration fails to give the desired information how much more disappointing to the patient.

Of late years, two valuable methods of investigation have been placed at our disposal in the Electric Cystoscope and Kelly's Tubes, both of which methods by direct observation are capable of helping much in cases which formerly had to be left unsolved, or could only be cleared up by exploratory operation. These two methods cannot be substituted the one for the other: each has its one particular field of usefulness. Kelly's instruments, which I show you here, can only be used in the female. They consist of cylindrical specula of various sizes, and one of these of suitable size is introduced into the bladder by the urethra, the urine having previously been withrawn. The patient may be in one of two positions, either in the knee-breast position, or on the back with the hips well raised. In either position, as the speculum enters the bladder and the obturator which closes its end is withdrawn, air rushes into the organ and balloons it.

By the aid of direct illumination from the forehead, or by a light in a suitable position reflected by a frontal mirror, the interior of the bladder can be inspected down the speculum. Certain accessory instruments are now required, viz., long narrow toothed forceps carrying cotton wool pledgets to mop the bladder walls when necessary, a small evacuating rubber ball with tube attached to occasionally suck up the urine dribbling into the bladder from the ureters, a metal probe or searcher, which like the speculum is provided with a handle at a right angle, to search for the ureteral orifices, and finally the urethral catheter. Successful examination depends greatly upon the absence of rigidity in the bladder walls. If from infiltration into their substance, or from compression from without expansion is interfered with, ballooning is not possible and a view of the interior is not obtained.

Under favourable conditions what advantages may be gained by Kelly's method? In the first instance practically the whole of the interior of the bladder may be inspected and the presence of growths, patches of ulceration, or of inflammation may be recognised. At the same time local applications may be made to the diseased areas, if this seems advisable; but this will only happen in a limited number of cases. This mode of examination also allows of catheterisation of the ureters, and in my experience is the most reliable method by which this can be effected. As might be anticipated, the mere inspection of the general area of the bladder is not easy until some experience of the use of the instruments has been attained, but the difficulty of finding and catheterising the ureteral orifices is much more considerable and cannot be effected with anything like certainty without much practice. The ureters may be catheterised for one of three purposes, to treat conditions of the ureter itself, such as stricture or inflammation, to separate the excretion from the two kidneys, so that the urine of each may be analysed apart from the other, and thirdly, to outline the ureters in such operations as hysterectomy when these tubes are occasionally injured.

It is yet too early to estimate the value of Kelly's method, but I recommend those not familiar with it to study Kelly's own description of it, in his *Operative Gynæcology*, Vol. I.

I think one is justified in saying that as a rule, in diagnosing conditions existing in the bladder, it is of inferior value to the electric cystoscope. The latter is more easily used, and is more constantly used, being applicable to both sexes, hence a larger experience is gained with it. In a very limited number of cases Kelly's method is of value, because by it local applications may be made to areas of disease in the bladder, and this without the administration of a general anæsthetic.

For the purpose of catheterising the ureters in the female the method appears to me to be without rival. In the treatment of diseases of the ureters I have no experience, but the number of cases calling for treatment appears to be exceedingly small, and judging from Kelly's own experience is very difficult, tedious, and irksome. Catherisation of the ureters to differentiate between the two kidneys is very rarely called for. The same manœuvre to indicate the position of the ureters in operations which may injure them can hardly fail to be of value, especially in excision of the cancerous uterus when the operator, wishing to go as wide as possible of the disease, is embarrassed in his desire to do so by the dread of injuring the ureters.

The Electric Cystoscope has been modified in various ways since its introduction. Personally I use either Leiter's or Fenwick's. The electric current may be supplied either by the ordinary street mains properly controlled, or by an accumulator; the latter has the great advantage that it can be carried to the patient's house with but little trouble. To secure portability the tendency has been to make many accumulators too small and such are notoriously unreliable. The one I show here is not so large as to be cumbersome, but I have found it to be quite dependable.

Having secured a reliable electric supply the operator should make himself thoroughly conversant with the cystoscope. It is an instrument with many awkward tricks and ways. It may fail because the connection between the lamp and the supply is imperfect; the view may be obscured because moisture has been allowed to dim the termination of the inner tube; the lamp may have been loosened at its terminals or it may have been burnt by too powerful a current. All these defects are easily remedied when detected. The cystoscope is duplicated; one instrument, the Inferior, is for examining the inferior and posterior walls, and views objects directly, that is just as they lie in the organ. The Superior is for examining the superior and anterior walls, and objects seen by it are reversed in an antero-posterior direction, but not laterally, in fact the image is modified in just the same way as the laryngoscopic image. With either instrument nearly all parts of the bladder can be examined, but both should be at hand for a complete examination. The Inferior instrument is however the more valuable, and especially so as in the large majority of cases the diseased conditions will be found on or adjacent to the trigonal area. The Inferior Cystoscope should therefore always be used first.

The Cystoscope is comparatively easy of introduction provided the urethra will admit a catheter of 13 size, English measurement. In examining the female bladder a general anæsthetic is hardly ever necessary, but is called for often in the male if a thorough examination is to be made.

No excuse is needed for my urging the extreme importance of asepsis in all these bladder manipulations by whatever method. The introduction of infection may be fraught with the most serious consequences to the patient.

Having tested the light and found it satisfactory the Inferior Cystocope, lubricated with glycerine, is passed gently into the bladder, which has previously been distended with clear fluid, such as a solution of boracic acid in warm water. When the instrument is well home in the bladder the light is switched on, and not till then.

Occasionally the diseased condition is at once brought into view and will at once be investigated. If this is not the case, a systematic search should be made, commencing at the trigone, proceeding thence to the area behind it and the posterior wall of the bladder, then each lateral area in turn receives attention. If nothing is thus discovered, the inferior cystoscope is withdrawn, the superior takes its place and a similar examination is made of the superior and anterior walls. Assuming that the instrument is in good order and the electric supply efficient, the commonest obstacle to a successful examination is the presence of blood in the fluid used to distend the bladder. A very small proportion of blood is sufficient to spoil the view, and the only thing to do is to empty out the fluid and re-distend. Sometimes the bleeding is so persistent that the examination has to be deferred to another occasion. If this is so, the lesion is almost certainly in the bladder and not in the kidney.

It may occur to your minds from what has just been said that it is undesirable to examine a patient during an attack of hæmaturia lest failure to discover the lesion should result. If the trouble is ***known*** to be in the bladder, it is best to examine in an interval when the urine is free from blood, but in many suspected cases the bladder or either kidney may be the source of the hæmorrhage. If either kidney is the seat of disease, active hæmorrhage at the time of examination is the one thing necessary to determine which is the offender, for this reason it is generally necessary to examine when an attack of bleeding is on.

The presence of pus or mucus in any quantity may also be an obstacle to a clear view, the medium being milky and opaque. This difficulty may generally be overcome by washing the bladder out two or three times. Occasionally a tumour may be so extensive that the cystoscope is immersed in it, and the view is entirely obscured. Assuming the medium to be clear the healthy mucous membrane is in general seen to be of a yellow or yellowish white colour, the tint varying somewhat with the intensity of the light. A few vessels without any very definite arrangement will be seen wandering over the surface. The surface of the trigone is smooth, but behind this there are more or less well marked rugae or fasciculations depending partly on the degree of distension of the bladder.

The possibility of burning the bladder walls must be kept in mind. With the most ordinary care this is not likely to occur. If the light is withheld from contact with the bladder walls, it is kept cool by the surrounding fluid and the lamp may be kept burning for several minutes without appreciably raising the temperature of the fluid. If, however, the lamp be immersed in fluid and impinges on the bladder walls for about 40 seconds, it will become so hot at the point of contact as to burn the mucous membrane. Contact with the mucous membrane for a few seconds' duration will do no harm.

It is necessary to warn anyone unfamilar with cystoscopic examination of the appearance presented by the mucous membrane where the bladder and urethra join. When the instrument in the bladder is slowly withdrawn the view suddenly changes from the flat yellowish white of the trigone to a prominent bright red mass, which naturally suggests that a tumour has been discovered. If the cystoscope be rotated on its long axis this appearance can be traced as a complete circle at the orifice of the bladder. The margin is rounded and rather swollen in appearance and presents slight indentations in places. Its red colour is due to the rays of light passing through the vascular marginal tissue of the urethral opening. It is impossibie to here indicate how to interpret all that may be seen by the cystoscope. Most of the conditions to be observed however, are not very difficult to appreciate. Tumour is generally easily recognised by its colour, its fixation to the mucous membrane and by its elevation above the surrounding surface. The object most likely to be mistaken for tumour is blood clot, often partly decolorised and lying on the floor of the bladder. It may be distinguished by its mobility, which may be demonstrated either by touching it with the end of the cystoscope, or by introducing a finger in the rectum or vagina according to the sex of the patient, and raising the floor of the bladder. In the case of a recent clot the similitude to tumour may be enhanced by the oozing of the colouring matter into the surrounding fluid, suggesting that hæmorrhage from a tumour is going on. Tumours may be divided into the innocent, which are generally papillomata, and the malignant, which are generally carcinomata. The papillomata are made up of delicate branched processes, pinkish red in colour in which tiny vessels can easily be distinguished and from which blood escapes freely on the least traumatism. They may be pedunculated or sessile, single or multiple, and they are free from ulceration at and around the base, though necrosis of some of the processes may be observed. The carcinomata can generally be recognised by their broad sessile attachment to the bladder; by, in the early stage, the rounded boss-like prominences they produce, in the later by the ulcerative process which attacks them. In formulating a diagnosis as to the innocency of a vesical tumour, other considerations besides the cystoscopic view must have considerable weight, the presence or absence of infiltration into the bladder walls as detected by palpation, the age of the patient, the length of time that symptoms have existed, the presence or absence of cystitis. Above all the presence of papillomatous or villous processes must not be construed as certainly indicating an innocent tumour, they may be and indeed quite often are associated with malignant formations.

The introduction of the cystoscope has revolutionised the diagnosis and treatment of bladder tumours, but even now one sees from time to time cases in which the neglect of its employment has inflicted pain and misery on the patients. I could quote numerous instances, but one of the most striking examples I have seen occurred in a young married woman, who was admitted to a country hospital with hæmaturia, frequent micturition, and pain after the act. She was sounded for stone, and none being found ulceration of the bladder was diagnosed and irrigation of the organ was resorted to. An intense cystitis followed, which reduced the patient to a complete physical wreck and rendered life a burden to her. The patient was referred to me at the Birmingham General Hospital, when cystoscopic examination under unusual difficulties revealed a sessile papillomatous growth on the left side of the trigone, and extending some way up the left side of the bladder near its orifice. By supra-pubic section the growth was removed, and after passing through an anxious period the patient was restored to robust health and splendid physique.

In the diagnosis for vesical stone the cystoscope is but rarely called for, the sound being all that is generally required; but occasionally, in sacculated bladder with stone, or in enlargement of the prostate with a small flat stone lying in the post prostatic pouch, the cystoscope is the only means by which a certain diagnosis can be arrived at. I have a vivid recollection of one case in which one knew from the cystoscope exactly where the stone lay behind the prostate, and yet, when the patient was under an anæsthetic, the sound entirely failed to recognise the presence of a stone.

When tuberculosis of the bladder is suspected cystoscopy should not be lightly undertaken; if it is, then special care should be taken to prevent the introduction of sepsis. Occasionally though, great advantage results from the recognition of a strictly localised tubercular lesion which can only be demonstrated by the cystoscope. Such a case was that of a man between 50 and 60 years of age, who had suffered double castration for tuberculosis of both testicles. Some four years later he was troubled with extremely frequent and painful micturition which worried him day and night, and rendered him unable to follow his occupation as a park superintendent. The urine was acid, copious in quantity, of low specific gravity, and contained a small amount of pus. Examination with the cystoscope showed only an irregular ulcer of about the size of a three-penny piece on the trigone and immediately behind it. The ulcer had a greyish yellow base, its margin was much injected, and I have no doubt it was tubercular, though the prostate and vesiculæ seminales were free from infiltration. Supra-pubic section and free curetting of the ulcer, followed by prolonged drainage, were followed by the most satisfactory results. It is now six years since, the patient has remained free from pain, micturates only from six to eight times in the twenty-four hours, and has been steadily able to pursue his work, whilst the quantity of urine has steadily diminished and its specific gravity has risen from 1010 on the average, to 1015.

Other interesting and curious conditions occasionally present themselves. Here is a picture taken from one, showing an abscess emptying into the bladder. The patient, a woman of about 35 years of age, had suffered since childhood from pain in the right side of the abdomen and pelvis. She had for years been under treatment, and one surgeon had removed her uterine appendages and another her right kidney. On each occasion, whilst in bed after operation, the patient had much relief from her pain, but this returned when she resumed her active life. When I saw her she complained of her old pain and of frequent micturition, whilst the urine contained a small quantity of pus. Examination with the cystoscope showed on the right side of the bladder, a little above the level of the floor and about 1½ inches behind the trigone, a spot from which pus was oozing into the bladder. On pressing with the hand over the right side of the pelvis, the pus escaped into the bladder in little sausage-shaped masses. Clearly an abscess was emptying in this way, and examination under an anæsthetic showed a dense mass of thickening in the line of the right ureter about two inches above its termination. Suspecting from its extreme hardness that this contained a calculus, the vaginal roof was split and through the opening thus made a renal calculus about the size of a horse bean was extracted with complete and permanent relief to the patient's symptoms.

Much information may be obtained by careful examination of the ureteral orifices. These can very generally be made out quite clearly, and if both kidneys are acting urine may be seen issuing from each orifice at a few seconds' interval corresponding to the peristaltic wave which passes down the ureter. If the urine is perfectly clear, it is recognisable by the little swirl which takes place when the ureter empties itself and the urine mixes with the fluid injected into the bladder. The different density of the two fluids, the urine and the injected fluid, no doubt materially assists the observation. The value of the observation lies in the demonstration it gives that both kidneys are present and acting. A single kidney is a very rare occurrence, but the surgeon about to perform nephrectomy must always have before him the possibility of this being the case in the particular patient on whom he is about to operate. Exploratory incision into the abdomen will tell him whether a second kidney exists or not, but cystoscopy will do so equally well in the majority of cases, and it is preferable.

An interesting example of the value of examining the ureteral orifices is given by a case I was invited to examine by a surgical colleague. In doing hysterectomy he divided one of the ureters. This was only recognised later on and the urine from this kidney escaped into the vagina. Nephrectomy on the damaged side was contemplated, and although the surgeon had a very shrewd idea which ureter had been injured he did not feel sure, and I was asked to make a cystoscopic examination and was able to recognise that urine was issuing from one ureter and not from the other. I had not been told previously which ureter my colleague suspected as injured, but my observation confirmed his suspicion and the kidney on that side was removed and the patient made a satisfactory recovery. When there is difficulty in recognising the escape of urine from the ureteral orifice assistance may be obtained by administrating three or four doses of a grain each of methylene blue which colours the urine in a very marked manner.

If instead of the urine being clear as it is emitted from the ureters it contains pus in considerable quantity, this can generally be recognised by the milkiness it produces as it escapes, and distinct particles of pus may be observed. Such recognition may assist in determining if one kidney only is involved in a destructive process. The most striking picture presented by the ureters is when *blood* in any quantity is escaping from them. With each contraction of the tube there is a puff of bloody urine into the medium used for examination, which looks like an eruption from a tiny volcano and is shown very well in this coloured drawing made from a patient whose kidney I subsequently removed for a curious and rare condition in which cystic degeneration was the chief change. Blood escaping from both ureters would indicate almost always some general condition and not a local lesion and I have never observed it. Blood escaping from one ureter would indicate either growth in the kidney or its ureter, some coarse lesion such as the cystic change I referred to as found in one of my cases, or some rare condition the nature of which is not yet recognised, but which is not due to any change apparent to the naked eye. The cystoscope cannot discriminate between these, that must be left to exploratory operation if it seems advisable, but the cystoscope tells first of all that the bladder is not the seat of the hæmorrhage, and that one or other kidney is.

The beautiful instrument which I show you here is Casper's Ureteral Cystoscope. It is fortunately rarely required in diagnosis, for the difficulty in using it successfully is very great, and it will be employed only by those who devote themselves entirely to special work of this kind. It will be used in the male bladder only, Kelly's method being certainly superior to it in the female.

Some cases of hæmaturia, not a few in number, are a reproach to our art. They are treated by drugs too numerous even to name; sometimes one acquires repute, sometimes another because the hæmorrhage ceases accidentally at the time some particular drug is being swallowed. Tried on another occasion it fails like its predecessors and one of its competitors is restored to favor, in its turn to be discarded. What is wanted in these cases is a diagnosis, and often the cystoscope is *the* means above all others by which that may be attained. Given a diagnosis, rational treatment follows.

A CONTRIBUTION TO THE ÆTIOLOGY OF CANCER.

(Continued from page 353, Vol xlvii.)

In the returns for Staffordshire the report of the Rugeley district was by mistake credited to Dr. Rowland who supplied the report from Lichfield. The Rugeley returns were forwarded by Dr. Hubbard, to whom, and to Mr. W. E. Rogers, the District Surveyor, the Committee are much indebted. The returns from Tettenhall were by mistake ascribed to Dr. F. A. Cooke instead of Dr. John Cooke.

WORCESTERSHIRE.

Registration Area.—***Tenbury.*** Pop. 7,282. Number of cases of cancer in ten years, 65 (M. 21, F. 44). Percentage ·89.

Bockleton District. Pop. 2,882, with 20 cases and percentage ·72.

Tenbury District. Pop. 4,400, with 45 cases and percentage 1·02. Distributed as follows :—Bockleton district.

Parish	Population.	No. of Cases.	Percentage.
Bockleton	238	1	·46
Eastham	321	6	1·86
Knighton-on-Teme	575	4	·69
Lindridge	691	0	—
Rochford	280	4	1·42

and six parishes with total population of 777 and 5 cases, giving percentage ·64. Tenbury district.

Parish	Population.	No. of Cases.	Percentage.
Tenbury	2,054	24	1·16
Brimfield	560	10	1·78
Nash	480	2	·41
Little Hereford	425	4	·94
Burford	356	4	1·12
Beraston	255	1	·39

and two parishes with population 270, with no cases.

Dr. Murray, to whom the Committee are indebted for this return, says: "The parishes which have the highest rate of mortality from malignant disease are, with one exception, those which lie in the Teme Valley and on the south bank. The subsoil, I believe, is gravel. The river receives untreated the sewage of Ludlow and Tenbury, and all the valley is very liable to ground fogs almost nightly. The parishes which are free, as a rule lie on higher ground. There is no marsh land, and the soil is mostly highly cultivated and well drained." The three cases dying in the Cottage Hospital have been referred to the parishes in which they lived previously.

Registration Area.—*Bromsgrove.* Sub-district, *Bromsgrove.*

Pop. 15,857. Number of cases of cancer in ten years, 98 (M. 36, F. 62). Percentage ·61.

The percentages for Bromsgrove Town and North Bromsgrove are respectively ·64 and ·75.

Dr. Edgar Underhill, to whom the Committee are indebted for this return, writes: "*Bromsgrove Town* lies low at the foot of the slope of the Lickey Hills, Breakback Hill on the South bounding a saucer-like depression in which the town lies. The soil is principally red marl or red sandstone with gravel deposits locally. Part of the town called Sidemoor is lower than the rest, and lies on alluvial deposit in which water is found within two or three feet of the surface.

North Bromsgrove embraces the healthy Lickey district, principally red and white sandstone, Catshill, which is red marl, with areas of alluvial soil, and Bournheath and Dodford, which lie on the Dodford clay. The Workhouse, which serves a district of close on 20,000 inhabitants, including Redditch, has during the last ten years shown an extremely low cancer death rate, considerably below the average in the component districts.

This concludes the returns and reports which have so far been received. In the majority of the returns the age, sex, and the organ believed to have been primarily affected have been stated. This enables the Committee to publish the following table, which, as the number of cases is very large (5,000) and has been furnished from all sources from a population of more than three-quarters of a million, should be interesting.

Table showing relative frequency in which the various organs are affected in both Male and Female.

Organ primarily affected.	No. of Cases.	Male.	Female.	Average age. M.	Average age. F.
Abdomen - -	152	53	99		
Axilla - - -	9	6	3		
Bladder - - -	99	78	21		
Brain - - -	29	16	13		
Breast - - -	554	6	548	50	60·3

Organ primarily affected.	No. of Cases.	Male.	Female.	Average age.	
				M.	F.
Face (including eye, nose, ear, and parotid gland	89	54	35		
Glandular - - -	8	2	6		
Intestine - - -	252	122	130		
Jaws - - -	74	52	22		
Kidney - - -	28	13	15		
Limbs (including spine and hip) - -	101	60	41		
Lips - - -	31	22	9		
Liver (and gall-bladder)	671	296	375		
Mouth - - -	24	18	6		
Neck and Throat -	83	48	35		
Œsophagus - -	136	104	32		
Omentum & Mesentery	56	11	45		
Ovary - - -	41		41		
Pancreas - - -	45	22	23		
Penis - - -	10	10			
Pharynx - - -	27	23	4		
Prostate - - -	12	12			
Rectum - - -	359	191	168	63·7	61 1
Scrotum - - -	7	7			
Spleen - - -	9	5	4		
Stomach and Pylorus -	728	408	320	62·8	62·0
Testicle - - -	17	17			
Thoracic - - -	57	34	23		
Tongue - - -	97	81	16		
Uterus - - -	724		724		53·4
Vulva - - -	24		24		
Epithelioma - -	24	17	7		
Sarcoma - - -	44	30	14		
Unclassified - -	206	73	133		
Sex not stated - -	145				
Totals - -	5,000	1,837	3,018		

First, it will be noticed that the female cases largely exceed the male in number. This will be seen to be almost entirely due to the large number of cases in which the uterus or female breast is affected, viz., 1,272. If all the cases occurring in organs peculiar to either sex be excluded, it is then found that the excess of female over male cases is more than cancelled, and the male cases exceed the female by about 6 per cent., the numbers being 1,785 males to 1,685 females.

In studying this table, it should not be forgotten that, as the diagnosis has been made in the large majority of cases without an autopsy, it cannot be so absolutely relied upon in the case of some of the organs as in that of others, such as the breast, the uterus, or the tongue, etc. It is quite clear also from a study of the Death Registers, that if autopsies were the rule instead of the exception, a very large addition would have to be made to the list of cases dying from cancerous affections. It is found that a very large number of deaths among old people are certified under such headings as "Chronic Intestinal Obstruction," "Chronic Jaundice," "Hæmaturia and Cystitis, 6 months," etc. etc. There can be very little doubt that in the majority of these cases an autopsy would have shown that a cancerous growth was the cause of the symptoms to which death was attributed. In the absence of the positive proof afforded by an autopsy, it is not unnatural for the certifier to meet this uncertainty by ascribing death to the penultimate instead of the ultimate cause.

Again, the "organ primarily affected" must for the same reason in the case of some of the internal organs be accepted with caution. This is most notably so in the case of the liver. A very large proportion of the cases certified as cancer of the liver are most probably cases of primary cancer of some part of the intestinal tract, or of one of the other abdominal or pelvic organs, in which secondary deposits in the liver have occurred early, and growing far more rapidly than the primary tumour have produced symptoms, which have entirely dominated the case and prevented the original growth from attracting attention.

The cases mentioned as "Epithelioma" and "Sarcoma" are those only in which the organ affected was not mentioned. Most of the cases under the heading "Limbs" were sarcomata.

It will be seen that the organs most frequently affected are the stomach, uterus, breast, and rectum. The enormous ***proportional*** liability of the uterus is particularly noticeable. It will be seen that the male is more liable to cancer of the stomach than the female, in the proportion of 5 to 4; of the bladder, in the proportion of nearly 4 to 1; of the jaws in the proportion of 5 to 2; of the œsophagus in the proportion of 3 to 1; and of the tongue in the proportion of 5 to 1.

The average age at death in the case of cancer of the stomach is practically the same in the two sexes, and differs but little in the case of the rectum; while in these two organs and the female breast there is only a variation of a little over three years, viz., from 60·3 to 63·7. The average age at death in the case of cancer of the uterus however is nearly ten years less.

It is now necessary to consider how far the facts recorded in this report, together with other information collected, enable the Committee to answer the questions asked on the fourth page.

1. Is it true that there are certain more or less well-defined areas where the mortality from cancer (using the term in its broad sense to include all malignant growths) is noticeably above or below the average for England and Wales, viz., ·58 per thousand per annum?

The evidence in favour of an affirmative answer to this question is overwhelming. Apart from the evidence afforded by the Decennial Report of the Registrar-General, which shows that the counties of Huntingdon and Cambridge have a cancer death-rate much in excess of the average it is clear that there are (1) areas more or less extensive throughout the whole of which the percentage of deaths from cancer is very much above, and others where it is very much below, the average. It is also evident that there are (2) circumscribed, often clearly defined, small areas where the percentage is very high indeed, and that even in what may be termed the non-cancerous areas, or more strictly speaking, the areas in which the cancer death-rate is low, there are (3) collections or groups of houses in which cancer has occurred with great frequency.

As an instance of (1) we may call attention to the whole of the Shipston-on-Stour Sub-district, in which every parish except one has a percentage ranging between 1·15 and 1·5; to the Rugby Sub-district in which the percentage of most of the larger parishes stands at or about ·9, and to many other districts such as Ludlow, Leamington, Tenbury, etc., all with very high percentages.

As instances of very low percentages may be mentioned the Foleshill Registration area, in which (with the exception of two small parishes the combined population of which is but little over 300) every parish has a percentage varying between the narrow limits of ·2 and ·47. Or again may be noticed the Cannock Urban District, or West Bromwich, or indeed most of the larger towns in the more elevated parts of Staffordshire, all of which have very low percentages.

It is very remarkable how closely in most of these cases the percentages for the individual larger parishes approximate that for the whole district. The percentage for the district in these cases is not so much the average of a number of individual percentages varying through a more or less wide range as it is the measure or expression of the whole district's liability to cancer.

As an instance of (2) may be taken the villages of Meriden, Hampton-in-Arden, Great and Little Packington, all with percentages approximating 1·7. This group of parishes has in connection with it on one side a chain of parishes in which the percentages gradually lessen until the average is passed and an area of very low percentage (Foleshill) is reached As further instances might be cited Madeley and Much Wenlock mentioned in Dr. Law Webb's report.

As an instance of (3) reference may be made to the group of houses mentioned by Dr. Rubra in his report for Tamworth, where (although the cancer death rate for the rest of the district was much below the average) the percentage was nearly 2.

The groups of houses mentioned by Dr. Gower Gardener, of Warwick, may also be referred to, and indeed generally the grouping of cases in individual streets about which more will be said when question 4 is discussed.

2. The second question, viz., "What physical conditions are present in those areas where cancer is common, and absent from those where it is rare?" is not so readily answered. The various reports reveal, more especially with regard to the geological factors, considerable differences of opinion.

It is better perhaps to deal first with those physical conditions about the presence or absence of which, in what may be termed the more cancerous areas, there is the most general agreement.

Although in some of the reports no direct reference to this matter has been made, still in a remarkable number of instances it has been noted, often apparently without attaching any very special importance to the observation that the soil or subsoil in the districts with a high cancer death rate has been "sodden with sewage," or "contaminated with sewage."

Or such remarks as the following have been made, "The drains are very defective;" "A very insanitary neighbourhood;" "Sanitation very imperfect;" "Sewage dammed back permeates the soil."

These conditions have not been noted as occurring in the districts where the death rate from cancer is low, so that the association is at least suggestive of a possible direct relation between a prolonged and excessive contamination of the soil or subsoil and cancer. In this connection may be mentioned the fact as recorded by many observers that old neighbourhoods, old streets, and old houses seem to contribute an undue proportion of cases. Dr. Mason, of Leamington, who finds most of his cases upon a sandy soil, and Dr. Martin, of Bloxwich, who finds nearly all his cases upon clay banks, both agree in specially noting that few if any of the cases occurred in the new houses or streets.

As the longer a district has been inhabited the greater chance there is of soil contamination, these two sets of observations may be directly related to each other.

It may be said that the contamination of the soil or subsoil with decomposing organic matter is the physical condition which the study of the various reports would suggest as being the one most frequently associated with a high death rate from cancer.

With regard to the dampness or dryness of the subsoil the evidence is less conclusive. There is, however, a considerable balance of opinion in favour of the belief that cancer occurs with greater frequency in districts where the soil is damp or insufficiently drained, marshy or water-logged, or where a sluggish stream is near at hand, which in flood time may cause the drainage to be dammed back. There seems little doubt that in really dry neighbourhoods where the drainage is rapid and effectual, cancer is not common.

On the whole, it may be said that the consensus of opinion, and the evidence of the statistics published in the earlier parts of this paper concur in assigning a more or less important place in the Ætiology of Cancer to a water-logged or badly drained subsoil.

Coming now to the question of the geological characters of the subsoil, we meet with considerable differences of opinion. In several of the reports it is stated that there is a marked tendency for the cases to occur more frequently upon clay soil, than upon sand or gravel. But in several other reports it is quite as strongly asserted that by far the larger number of cases occur upon a sandy or gravelly soil, while neighbourhoods upon clay soil are comparatively free.

That marked differences do occur associated with certain geological characters of the subsoil can hardly be denied, but that these variations are due to geological differences apart from the question of porosity, or their relation to drainage seems very doubtful. Possibly the first point mentioned, viz., the contamination of the subsoil may after all account for some of the differences noticed. Thus a stiff clay subsoil lying in a hollow, or in a slightly undulating country, such as Madeley and Much Wenlock mentioned by Dr. Law Webb, would prevent or retard the running off of the surface water, and more readily permit of the gradual contamination of the soil, while if lying on a slope the same characteristic of want of porosity would act in the contrary direction.

Again, some forms of clay soil do not hold water so well as others, and it is not improbable that the clay banks of Bloxwich mentioned by Dr. Martin as "cancer areas," formed as they are by made ground, might be very much more porous than a virgin clay soil. Again, Dr. Law Webb mentions the occurrence of a group of cases on limestone or chalk. In connection with this it may be worth noticing that while chalk is extremely porous, allowing water to run through it rapidly it has the power of retaining moisture somewhat on the principle of the sponge.

On the whole, the probabilities of there being any connection between the geological characters of the subsoil (apart from its physical characteristics) and the prevalence of cancer seems to be negatived by the evidence the Committee has collected.

3. The next points to be dealt with are the effects of "age and sex incidence." In order to answer this question certain districts in which the death-rate from cancer is either very high or very low have been selected and cancer death-rates corrected for age and sex have been worked out. The results clearly show that it is only a small proportion of the increased or diminished death-rate from cancer which is due to these causes. This will be best shown by taking the case of the combined districts of Leamington and Warwick (in both of which towns the percentage rate is very high) and seeing how many of the increased number of cases would be accounted for by correcting for age and sex.

The combined populations of Leamington and Warwick are 45,385, with 471 deaths from cancer in ten years. The number which would have occurred if the cancer death-rate for these towns had been the average rate for England and Wales is only 267·2. Now in this district there are 5 per cent. more persons over the age of 35 years than is the normal for England and Wales. This gives us 2,269 persons among whom the expected death-rate from cancer would be 1·84 instead of ·58, or an excess rate of 1·26. 2,269 persons at the rate of 1·26 per cent. gives 28·5. But in addition to this we find that there are 10 per cent. more females than males in this district instead of the normal 3 per cent., which gives us 7 per cent. of the population to be calculated at ·73 (rate for females) instead of ·58 (rate for persons). The difference between these two percentages is ·15, at which rate 3,176 persons would give 4·7 extra cases. We thus see that by correcting for age and sex we account for 33 of the 204 cases which have occurred beyond the expected number, while 171 remain to be accounted for on other grounds.

In some of the other districts where a high cancer death rate has been noted, an excess of persons above the age of 35 is also found, but in no case does this excess exceed 6 per cent. In the Meriden district it is 5 per cent., in the Rugby district, 3 per cent., and as might be expected, in most country districts, even where the cancer death rate is not high, there is a slight excess of persons above the age of 35 years. The highest of these figures, however, is quite inadequate to account for the high percentage recorded.

Sex incidence seems to be still less the cause of the high percentages since in no instances is the discrepancy between the sexes so marked as in the one just mentioned, and here only 2 per cent of the excess cases can be accounted for by this means. Taking some of the districts with a low death rate, we find that in the Dudley district the number of persons over the age of 35 years is only 3 per cent. below the normal, in the Cannock district, only 1 per cent. below, and in the Foleshill district, 1½ per cent. *above* the normal.

It seems quite clear then that age and sex incidence, though of course affecting the cancer death rates more or less in different districts do not account for the great variations found, which must therefore be due to other causes.

4. With regard to the last question asked, viz., as to the

existence of "Cancer Houses," the evidence points somewhat strongly to the occurrence of second or third cases in the same house as being more frequent than can be accounted for by appealing to the theory of probabilities, but hardly so frequent as to justify the term "Cancer Houses."

But when we inquire into the frequency of the occurrence of cancer in groups of houses instead of individual houses, we cannot fail to be deeply impressed by the large amount of evidence bearing upon this question.

In street after street we find that the cases occur in close proximity, often next door to one another. Again and again we find a group of cases which are all close together. An instance recorded by Dr. Mason in his report of the Leamington district is a good example of this tendency. In one street in which the houses were numbered alternately on the two sides of the road, there were five cases of cancer in ten years. They occurred at numbers 3, 5, and 7 on one side of the street, and at numbers 4 and 6 on the other. With such grouping of cases as this, the conclusion is almost forced upon us that here we have to deal with what may be described as a "cancer focus."

If this investigation has proved nothing else it has clearly shown that this remarkable tendency exists, and its existence cannot fail to suggest questions of deep interest touching the causation of cancer

The association between a contaminated soil and cancer may here again be the answer to the question why this grouping of cases should occur.

After carefully reviewing all the evidence which has been collected the conclusions which suggest themselves to the Committee are the following:—

1. Certain more or less well-defined areas exist in which the mortality from cancer is markedly above, and others in which it is markedly below, the average for England and Wales.

2. Although age and sex incidence undoubtedly influence this variation, in some cases considerably, they only account for a small proportion of it.

3. That owing to the great difficulty of diagnosis in many cases of internal cancer the death-rate from cancer is probably at present under-estimated.

4. Contamination of the soil or subsoil for long periods with decomposing organic matter is very probably a factor in the production of a high death-rate from cancer.

5. A damp, ill-drained, water-logged soil of whatever geological formation is more frequently associated with a high cancer death-rate than is a dry well-drained soil.

6. There is abundant evidence of the existence of groups of houses in which cancer is found with marked frequency; and some evidence which tends to show that second and third cases occur in the same house with greater frequency than can be accounted for by mere coincidence.

7. Cancer occurs more frequently in old than in new houses and districts.

8. There is some evidence suggesting that under certain circumstances cancer may possibly be transmitted from one person to another in constant close association.

In conclusion, the Committee wish to thank all those who have so kindly forwarded returns from the various districts, and whose names have already been mentioned in connection with these districts. The thanks of the Committee are also due to the following gentlemen who have interested themselves in the work of the Committee by forwarding books or papers, or in other ways: T. W. Nunn, Esq., C. A. Ballance, Esq., Dr. Jno. Tatham, Dr. T. W. Blake, Dr. W. H. Symonds, Dr. George Wilson, and Dr. G. M. Scott.

SPASMODIC WRYNECK.

BY DOUGLAS STANLEY, M.D., M.R.C.P.

I HAVE very recently had under observation some instances of Spasmodic Wryneck, and illustrative of some of its clinical varieties. These I shall describe in a very brief manner, in order to support some remarks on the treatment followed out in each.

Case 1 was a girl, aged 19, who showed spasmodic twitching of the sterno mastoid of the left side. This had lasted for about three weeks. I could not ascertain that any other muscles were involved. The patient seemed a nervous girl, and was intensely anxious about herself. I saw her a week after when she was much better, and in a month from the date of her first visit the head was quite steady. This case evidently comes under the head of hysterical spasm. The patient had every aspect of the main condition. The treatment was valerianate of zinc, change from home, open air exercise, and the assurance that she would get quite well. In other words, she was treated on general principles. About eighteen months ago I had a very similar case sent to me, which I believe ended satisfactorily, being treated in much the same manner.

Case 2. Mrs. D., aged 36, a widow who kept a small shop. For some four or five months she had been troubled with twitching of the muscles of the left side of her neck. On examination, I found spasmodic twitching of the left sterno-mastoid splenius and trapezius. There also seemed to be some contraction of the right trapezius in its upper portion, alternating to some extent with that on the left side. The patient was a thin, anxious woman, troubled by the *res angustæ domi.* Her appetite was poor, and her tongue dry, but she was able to sleep well.

This case was in every way different from the last. She was given cod liver oil and easton syrup, and arrangements were made for electrical treatment. For some time she came every other day to the hospital, and in about four or five weeks there was some improvement. About three weeks from first being seen, she was ordered some bromide with cannabis indica, and a little later on, massage of the affected muscles was added. This was not carried out for long, as she was beginning to find her arrangements for staying in Birmingham too inconvenient, and she was obliged to return to her home. The result then in this case was partial improvement, which might have been better but for circumstances.

Case 3, T.P.W., aged 49, a grocer's assistant. He had been troubled for some months with spasmodic wry neck, involving the sterno-mastoid trapezius and splenius of the left side. The patient was of an intensly nervous stamp. At times he almost whined that he would not get better. In fact, for some time, he got worse in every way. The treatment was much the same as in the last case. Nervine tonics, battery and then massage. He showed a considerable degree of improvement, but the man began to starve and he had to be sent to a convalescent home for the double purpose of getting him fed and to convince him his case was one which we were anxious to cure, or, to use the popular expression, that everything that could be done was being done. On his return, I hope to go steadily on with the battery and massage.

Case 4 was a young man aged 28. He had suffered from considerable exposure abroad, together with some severe mental strain. There was a marked neuropathic family history. The movements came on gradually, with a feeling of inability to turn his head to speak to a person on his left; then spasmodic contractions of the left sterno-mastoid muscle. When I saw him he had intense spasmodic wryneck with contractions in several of the neck muscles, as the sterno-mastoid splenius and trapezius, and there was also some facial spasm on the left side. The contractions were intensely painful, and a considerable swelling formed in the sterno-mastoid somewhat resembling a biceps muscle. There was much restlessness and irritability. Rest in bed was difficult and disturbed, owing to the severe contraction of the neck muscles which at times seemed to turn the whole body over after the head. This case, the most severe I have seen, showed, therefore, extension of spasm to muscles outside the group of head rotators.

In this case the treatment was more sedative, as he had bromide and cannabis indica freely, and in a short space of time electricity. The case was a difficult one to deal with for reasons only indirectly medical. I was subsequently informed that he had greatly improved. Later, he went away for complete quiet and change of scene, and fed up. He had massage, and the last I heard was that he contemplated returning to his professional work as recovered.

I have merely given these notes, not for any special interest they present, but as being fairly typical of the disease. Nothing would, however, be gained by going into detail here, as to the various movements of the head in different cases according as the most intense contraction takes place in the sterno-mastoid or trapezius and other muscles. I may, however, refer to one variety, rare, probably, as not much mention is made of it, that in which the spasmodic contraction takes place in the platysma myoides and depressors of the jaw. The result is flexion of the head with drawing down of the jaw and lower portion of the face on the affected side. I have only seen one such instance.

Reviewing these illustrative cases and others which recur to everyone, it is evident that the psychical element is an important one, and that it must not be passed over in taking a comprehensive view of the subject. Probably, the larger proportion of cases of spasmodic wryneck occurring in early adult life are hysteric; especially if in the female. Their treatment is plain, but nevertheless important, for very probably a case which at 20 is amenable to treatment, may, if mismanaged, become the genuine article at 36 or 40. Such cases therefore should be taken vigorously in hand, isolated, and treated on general principles, on which there is no need to dwell. But in others such as I have quoted, there is the same call for isolation from all worries—business or by relatives. There is absolute need of sedative treatment with nervine tonics, with the addition of such things as cod liver oil in cases of spare habit and that peculiar constitution, mental and bodily, which we recognise as the neurotic. We know the necessity of such treatment in another spasmodic disease—chorea—and like chorea, spasmodic wryneck may be an exhausting condition. And it goes without saying that when possible, there should be complete change of air and scene, and abundance of cream and eggs and fattening diet, so valuable in other neurotic diseases.

To come to the special from the general. I have referred above to electricity. I purposely expressed it vaguely, so as to leave room now for putting it more definitely. This must be in the form of constant currents. The best method is to use a flat electrode for the anode, the cathode pole being an ordinary cylinder. This last may be grasped in the hand of the patient, the anode applied to the affected group of muscles. The current does not require to be strong 6, 7, or 8 cells. It can be applied by a patient himself when severe spasms come on. He can quite easily lie in bed with the battery on a shelf above his head, and the poles within reach. Used so, electricity is sedative. In a recent and able article on the subject of spasmodic torticollis in a reference work on Medicine, the statement is made that "the employment of electricity faradisation or galvanism is empirical." This is perhaps an unfair view. If it had been stated that the induced current is harmful, it would have been nearer the truth. In some cases there is as much difference between faradisation and galvanism as between strychnine and bromide. And the stimulating effects of the induced current can only be of much harm to the patient as a little reflection would show. It is only one of many instances of the prevailing ignorance in this country of electro-therapeutics.

Massage has also been mentioned, and it certainly appears to be of use. But it should not be employed too early; I should say not in the first two or three weeks. It should not be applied too long or too frequently to the affected muscles or it may only irritate them. It is, I believe, most useful in spare and asthenic patients. Lastly, its application should be general. Possibly its general action is the most important. Treated thus, probably many cases of spasmodic wryneck will respond. The various nervine tonics are valuable. I have referred to valerianate of zinc. Arsenic is also useful though I have been afraid to continue it very long as the dose ought to be liberal. But in case of failure, and that such treatment may fail is in some cases only too true, there is the question of operation. On this subject I can only speak with much diffidence. I submit that early in any case operative interference, whether neurotomy or neurectomy, is not expedient, and for two reasons—medical treatment may succeed—operation may fail. In the first the result is satisfactory, but if on the other hand the treatment be operative—the only method according to some—the patient has only one string to his bow and it may fail. If, however, he be shewn that while non-operative measures properly carried out may do good, and failing these, there is the question of surgical intervention, the case is placed on a sounder basis. Further, we are then dealing in a more rational manner with one of the most important elements in most cases, if not in all, of spasmodic wryneck—the mental. In these cases it is certainly a most serious thing to put to a patient, as I have known it done, that the only treatment is operation, and without the assurance so valuable in many other instances of every probability of success.

As regards the operation itself. Recent investigations go far to extend our ideas on the subject. Spasmodic wryneck can no longer be regarded as a disease in which the sterno mastoid is at fault and the spinal accessory nerves in error. Therefore, an artificially produced paralysis of that muscle by division of that nerve is not logical. In the cases just quoted, mention has been made of spasmodic contraction of many other of the rotating muscles of the head. In fact, it is possible for all to be involved. I do not mean that in a given case the sterno-mastoid may not be the only muscle apparently in a condition of spasmodic contraction. That would not be correct. There are no doubt such cases, but personally I have not seen a case of non-hysterical spasmodic wryneck in which I could not detect spasm of other muscles as well as of the sterno-mastoid. Furthermore, there seem to be rare cases in which the scaleni muscles seem to be the only ones affected. In fact, to have a logical conception of the subject, we had better clear our minds of the idea that the condition is a local or peripheral one—it is most probably a central disorder, but into this it is now impossible to enter.

Granting then, that several muscles are involved, such as the sterno-mastoid, splenius, trapezius, complexus, the hyoid groups, and possibly the deeper muscles, as the recti and obliqui; and seeing that the nerve supply of these muscles is extensive and complicated, the only method which can promise success is to deal with the upper spinal nerve trunks—possibly nothing short of excision of a portion of the upper four. The upper four, because the muscles just mentioned take their innervation from them.

The part played by individual muscles or sub-groups of muscles in bringing about different positions of the head, is therefore important, and has been experimentally investigated by Risien Russell, who also shows that nerve stimulus may be conveyed to a muscle through bye-paths when the dominant nerve has been divided and even when all chance of reunion has been removed by excising a portion of the nerve in question. We know now that so extensive and complete is the system of collaterals in the cord, that there can be but little difficulty in the cornual cells of different levels being put into communication with the cephalic grey matter, so possibly different paths of stimuli are opened up to a muscle though its main nerve supply has been interfered with. Thus, taking the sterno-mastoid as an instance, the spinal accessory may be divided at pleasure, the 2nd and 3rd roots will probably soon find a way to bring about stimulation. This is consequently the position taken up by Keen and others, and seemingly a logical one to deal with the trunks, not the nerves themselves. This fact alone points to a very careful estimation of all the aspects of the case, as there can be no doubt that this method is considerably more serious than that of dividing the spinal accessory only.

I would like to mention in concluding the following fact as one for reflection. I know of a medical man who had charge of a particularly severe case of spasmodic wryneck. For several days he himself was troubled with pain and some stiffness, he could not call it spasm of the sterno-mastoid muscle. It is possible that in a neurotic family under certain circumstances we might have to consider prophylaxis.

In dealing with this in many ways unsatisfactory disease, we should employ with patience methods which have in many points much to recommend them. Failing these, there is operation, which should be rational in its way though severe.

P.S.—Since the above was written I have followed the three cases referred to.

No. 2, Mrs. D., attended at my out-patient department, Queen's Hospital, about the last week in March. She had improved considerably, and had continued taking her prescription of Cannabis with Bromide. There was only very slight movement to be detected in sterno-mastoid and upper trapezius of the left side. She was more cheerful and had apparently increased slightly in weight.

T. P. W., Case 3, also reappeared, and the improvement was also very marked. There was still some contraction of the chief rotatory muscles of the left side. This was however slight as compared with his former condition and slower, that is to say, less jerky. The man's general condition had also improved. I again sent him away to a convalescent home.

Case 4. I have been informed by a friend in London who recently saw him, that he has completely recovered.

REPORTS OF CASES.

A CASE OF STRANGULATED FEMORAL HERNIA; GANGRENOUS INTESTINE; ENTEROSTOMY; RECOVERY.

BY LEONARD GAMGEE, F.R.C.S.,
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C. B., a woman, aged 56, was admitted into the General Hospital on September 10th, 1899, suffering from a strangulated right femoral hernia. The strangulation had been in existence for five days and repeated attempts to reduce the hernia by taxis had been made. The patient was in an extremely feeble condition and had constant fæcal vomiting. The hernia was small and tense, the skin over it being neither reddened nor œdematous. Herniotomy was performed two hours after admission. The deeper layers of the coverings of the sac were œdematous and infiltrated with blood, while the sac itself contained blood-stained fluid and a loop of small intestine, which latter was tightly nipped by Gimbernat's ligament. On either side of the bowel opposite the constriction was a gangrenous patch the size of a sixpence, the rest of the loop of bowel being dark in colour, but apparently living. On account of the very feeble condition of the patient it was decided to simply make an artificial anus and to defer the performance of enterectomy until the patient's state had improved. Consequently, after Gimbernat's ligament had been divided, the gut was pulled well down into the wound, so that the gangrenous patches were quite clear of the femoral canal; a pair of Spencer Wells' forceps was passed through the mesentery to prevent the gut slipping back, and the abdominal cavity was shut off as far as possible by iodoform gauze packing.

On the next day, Sept. 11th, about thirteen hours after operation, it was found that each of the gangrenous patches had given way, while the general condition of the patient had improved, all the symptoms of strangulation having subsided. On Sept. 12th the patient's condition had still further improved, while there was a free escape from the wound of very liquid intestinal contents, which caused intense irritation of and was commencing to digest the surrounding skin. The patient suffered from extreme thirst, which was in no way relieved by the small quantity of milk and brandy, which she was taking by the mouth.

On Sept. 13th enterectomy was performed. A silk ligature was first passed round the gut immediately above and another one below the gangrenous patches, the further escape of intestinal contents being thus prevented. Then the gauze packing was removed and the tissues on the surface of the wound, being naturally in a very septic condition, were cut away with scissors.

Next, the wound having been enlarged upwards by the division of Poupart's ligament, the gut was pulled well out on to the surface and the abdominal cavity shut off by packing. The gut, gently compressed by the fingers of an assistant, was then divided immediately above and below the silk ligatures, the mesentery being divided straight along its junction with the bowel. The piece of bowel excised was rather more than three inches in length. The ends of the bowel were next united by means of a Murphy's button, the union being strengthened by the insertion of two or three silk sutures on either side of the mesenteric attachment. The gut was returned into the abdomen and the upper end of the wound was closed by two or three sutures, the lower part being left entirely open and loosely packed with iodoform gauze. The patient did well in every respect, the bowels being opened naturally on the third day. The wound rapidly granulated up, no leakage occurring, and the patient was discharged from the Hospital in seven weeks' time. Nothing has been seen of the button; but it may have been passed, as owing to a mistake the motions were not examined for a space of ten days. At the present time the patient is perfectly well, the bowels acting regularly with the occasional aid of a mild aperient.

Remarks.—If, during the operation of herniotomy, the constricted intestine is found to be gangrenous, it becomes necessary to decide whether a primary resection should be done or an artificial anus formed and the gangrenous intestine excised after an interval. Provided that the patient's general condition is good enough to allow of the necessary prolongation of the operation, primary resection is, I think, advisable. But an incomplete operation with a survival of the patient is to be preferred to a complete one resulting in the death of the patient from exhaustion, and so, if the prolongation of the operation is contraindicated, it is better to make an artificial anus and to defer the enterectomy till the patient's condition has improved. If, as in the case of which I have given details, it is considered best to make a temporary artificial anus, the question arises—Shall the stricture be divided and the gut brought well out into the wound, or shall the gut be simply incised and the stricture left undivided? In his "Manual of Operative Surgery," Mr. Treves advises that the latter course be taken, and he states that the passage of fæces rapidly follows upon simple incision of the gut. I have twice employed the method advised by Mr. Treves, each time with a fatal result, and each time, judging from the patient's symptoms, from the absence of the passage of fæces, with a failure to relieve the strangulation. It is quite true that, if the stricture be divided the abdominal cavity is open to the risk of infection; but this risk can, I think, be adequately guarded against by the employment of iodoform gauze packing. Seeing that, in a case of strangulated hernia, the patient's symptoms are altogether due to the nipping of the gut, it seems to be more rational to divide the stricture and to run the comparatively small risk of infecting the peritoneal cavity than to leave the gut still constricted.

In this instance I was induced to perform the secondary enterectomy as soon as the patient seemed strong enough to bear it, by the following considerations:—

1. The opening was evidently high up in the small intestine. This was shown by the very liquid state of the contents, by the digestion of the skin, and by the patient's great thirst.

2. The escape from the opening was so free as to show that practically none of the contents was passing into the bowel below.

The question as to whether the ends of the bowel should be joined by a Murphy's button or by suture is still *sub judice*; but one cannot help thinking that there is a tendency in some quarters to unjustly condemn the use of the button. The wound was left almost entirely open in this case, because it was quite clear that the tissues about the lower part of the wound were not in a condition to bear suturing.

MEDICAL ABSTRACTS.

THE COMPLICATIONS OF TYPHOID FEVER.

BY JAMES W. RUSSELL, M.D.

Des Ostéomyélites typhoidiques. Observations. Etude clinique et anatomie pathologique. Par J. Tapie (*Archives Provinciales de Médecine*, 1er Avril, 1900).

An account of some Cases occurring in the Maidstone Typhoid Fever Epidemic. By T. Brice Poole, M.D. (*Guy's Hospital Reports*, *Vol liii.*)

Typhoid Spine. By R. W. Lovett, M.D. and C. F. Withington, M.D. (*The Boston Medical and Surgical Journal*, March 29, 1900).

Gangrenous Dermatitis complicating Typhoid Fever. By B. Franklin Stahl, B.S., M.D. (*The American Journal of the Medical Sciences*, March, 1900).

Some Complications of Typhoid Fever. By Frederick Taylor, M.D., F.R.C.P. (*Guy's Hospital Gazette*, June 23, 1900).

De la Desquamation dans la Fièvre Typhoide chez l'Adulte. Par le Dr. Paul Remlinger (*Révue de Médecine*, 10 Mai, 1900).

Acute Glossitis complicating a Case of Typhoid Fever. By H. Campbell Thomson, M.D., M.R.C.P. Lond. (*Lancet*, June 23, 1900).

1. *Osteomyelitis and Periostitis.*—Dr. Tapie records two cases of post-typhoid periostitis and osteomyelitis, and supplements his account by a short study of the natural history and pathology of these affections.

The first case was that of a boy, aged 14, who began to suffer from symptoms of typhoid fever on October 15th, 1894. From the outset the illness was of a serious nature; the patient suffered from tachycardia and delirium and fell into a condition of great weakness. As the temperature was high, cold bathing at three-hourly intervals was adopted early in the course of the illness. The condition very slowly improved, but it was not till towards the end of December that convalescence began to be established, the patient being by that time very emaciated. He was then seized one night with severe pain in the left arm, right calf and left thigh. In the first of these situations the symptoms ceased in the course of 24 hours, but in the calf a small abscess formed which healed quickly after incision and drainage. The left thigh, on the other hand, remained extremely painful and became enormously enlarged, but developed no area of softening until three months later, when a tubercular osteitis was diagnosed. The enlargement gradually cleared up, however, without interference, and complete recovery ultimately ensued.

In the second case, the patient, a young soldier, aged 24, developed typhoid fever about December 20th, 1898. He remained in bed for nearly three months, and during convalescence on March 25th was attacked in the night with severe pain in the right wrist. Fifteen days later after a walk he felt a sharp pain in the front of the left tibia and found a slight swelling in that situation. Two months later this burst and discharged a small quantity of yellowish pus. Meanwhile the wrist increased in size. Some time afterwards it was incised and again a small quantity of pus was evacuated. In the course of the next few days the right radius was attacked with pain and swelling, but no suppuration occurred although the symptoms had not subsided by the end of the year 1899. The pus from the tibia was twice examined for micro-organisms, but each cultivation proved to be sterile. Dr. Tapie considers that this is tantamount to proof that the suppuration was not due to the ordinary organisms of suppuration, and thinks that the inflammation was directly caused by the typhoid bacillus. This is strongly supported by the fact that when tested fourteen months after the onset of the fever, and whilst the discharge from the tibia still continued, the blood serum gave a well-marked Widal reaction.

The acute onset and rapid development of symptoms in the former of these cases is exceptional. As a rule, the course is a very gradual one, and it is not uncommon for the symptoms to progress slowly for many months.

When once a swelling has made its appearance, three events may occur: (1) complete resolution may take place, (2) the lesion may persist indefinitely, often being mistaken for a syphilitic or tubercular osteitis, or (3) it may go on to suppuration. The suppuration may quickly cease after the abscess has been opened, or a sinus may continue to discharge for many months. Suppuration is thus not a necessary result of infection of bone by the typhoid bacillus.

The long bones are most frequently attacked. According to Chantemesse and Widal, the tibia is affected in 86 per cent. of the cases. Next to the tibia come the carpus, femur, humerus, ribs, sternum and metacarpal bones. It has been suggested that slight injury may be the determining factor in localisation, but Dr. Tapie considers this unproved.

The lesion is generally situated in the diaphysis, and is commonly more superficial than deep. But the deeper parts, down even to the medulla itself, may also be attacked. Three instances of the latter affection are quoted. Sequestra are very rarely found.

The bacillus of Eberth has been frequently discovered in the pus of the suppurating lesions, but on the other hand its presence cannot always be demonstrated, as is seen in the second of the two cases recorded above. Similar cases have been recorded by Tuffier, Widal, and Achard. The long continuance of the Widal reaction in Dr. Tapie's second case is worthy of special note.

Some difficulty may be experienced in making the diagnosis, especially if the occurrence of the typhoid attack is not known. Syphilis and tubercle are the two conditions for which the lesion is likely to be mistaken. The prognosis is on the whole good.

In treating such a condition Dr. Tapie advises non-interference so long as there are no signs of suppuration. When these make their appearance it is needless to say that operative measures must at once be adopted.

In his analysis of 210 cases of typhoid fever occurring in the Maidstone epidemic of 1897, Dr. T. Brice Poole met with nine instances of periostitis. In two cases it followed slight injuries, but in none did it go on to suppuration. The tibia, radius and ulna were each affected twice; the ribs, humerus, coracoid process of the scapula, clavicle, and metetarsal bones, once only. The onset occurred at the following periods after the commencement of convalescence, namely, three, six, eight (twice), thirteen, fifteen, and seventeen days, and four, seven and twelve weeks (twice).

2. *Typhoid Spine.*—Drs. Lovett and Withington record an instance of the comparatively rare affection known as typhoid spine. The patient was a physician, aged 35, who was attacked by typhoid fever whilst serving in the Cuban campaign of 1898. The illness began on July 17th of that year. There was a high continuous temperature for two weeks and an intermittent temperature for two weeks more. The diagnosis at this time was "tropical malaria." About the 25th September he began to feel pain in the lumbar region, and on October 6th after getting very tired had severe cramps in the same situation, for which he remained in bed for three days. No further symptoms were noted until November 26th, when he was exposed to a slight chill and had a return of the cramps, which necessitated his entry into hospital on December 3rd. At this time he complained of great lumbar pain, coming on in paroxysms and much aggravated by movement. Massage and faradism either increased the pain or were ineffectual to relieve it. The temperature was normal, but the abdomen was tense, tympanitic and slightly tender. The blood was examined for plasmodia on December 3rd, 13th and 30th without result, but on the latter date a typical Widal reaction was obtained. On January 30th examination showed an area of diminished sensation to pain and touch on the outer surface of each thigh; the knee-jerks were lively, the plantar and abdominal reflexes normal, and the cremasteric sluggish. The spines of the lower dorsal and upper

lumbar vertebræ were tender to pressure, the muscles of the loin rigid; but there was no prominence of any vertebral spine. The patient was unable to stand upright, and the pain became much worse during the attempt. Whilst sitting, the weight of the body was supported mainly on the elbows. There were no rectal or vesical symptoms. On February 11th there was some prominence of certain vertebral spines, and muscular spasm was very pronounced. The temperature showed slight oscillations. A plaster jacket was applied and the patient was kept in the recumbent position. The Widal reaction was still present on April 1st. From this time very slow improvement began to take place, but it was not till October that the patient was able to return to practice, and at the end of the year he was still wearing a leather jacket. It should be added that the injection of tuberculin gave a negative result.

Drs. Lovett and Withington have collected nine cases in all of this curious affection. All the patients were of the male sex, and all young adults. The condition is held by various writers to be either a neurosis or a spondylitis or perispondylitis. In the present case the prominence of the vertebral spines would seem to show the presence of some organic mischief, although some of the symptoms correspond well enough to those of a neurosis. The possibility of a direct typhoid infection of the vertebræ must, however, be borne in mind, and it is interesting to note that in one case recorded by Quincke there had been an earlier periostitis of the parietal bone. The authors are on the whole inclined to regard the condition as a periostitis or osteomyelitis due to infection by Eberth's bacillus.

Dr. Brice Poole met with one case only of typhoid spine in his series of 210 cases.

3. *Gangrenous Dermatitis.*—During the months of August, September, and October, 1898, Dr. B. Franklin Stahl treated 144 cases of typhoid fever in the wards of the St. Agnes' Hospital. The patients were all soldiers, and only one was over 25 years of age. Ten of these developed a gangrenous dermatitis. The condition came on after the patients had passed through the

worst period of the disease, and was accompanied by grave anæmia, with very feeble first sound of the heart in five cases, and mitral regurgitation in two. Pronounced arterio-sclerosis was present in one case, and a large proportion of the patients showed more or less of this affection. The condition is believed to arise from a thrombosis or embolism, and in the two cases which were examined *post mortem* infarctions of several of the organs were found. Three of the cases terminated fatally. A full account of the symptoms of each of the ten cases is given in Dr. Stahl's paper, together with several photographs.

No instance of this condition occurred in Dr. Poole's cases. The only examples of skin affections recorded by him are perianal ulceration and vulvar irritation and ulceration, each of which occurred in one case only. Nine cases of abscess were however noted, several of which formed in the subcutaneous tissues, and may well have had a similar origin.

4. *Cardiac Failure and Rigors.*—In a clinical lecture delivered recently at Guy's Hospital Dr. Frederick Taylor relates the details of two interesting cases. In the first the patient died from cardiac failure of an unusual type. He had passed successfully through a moderately severe attack of typhoid fever and was apparently becoming convalescent when the temperature began to rise again, and it was feared that a relapse was occurring. The fever continued at a fairly high level, but the clinical features of the illness did not resemble those of typhoid. The patient did not complain of feeling very ill, and he remained in a singularly cheerful mental condition almost up to the time of his death. Profuse sweating occurred and the heart became extremely feeble: there was well-marked enlargement, the apex being outside the nipple line, and the pulse and heart sounds became very feeble. Towards the end there was considerable enlargement of the liver and hypostatic congestion of the base of the right lung. Dr. Taylor considers that the condition was one of rapid cardiac dilatation due to the typhoid poison.

In the second of the two cases the patient, a boy aged 6, was in the third week of his attack when one evening the temperature suddenly fell to 97, and there were signs of collapse without any ground for diagnosing either hæmorrhage or perforation. The next day (March 3rd) the temperature rose to 104 and the patient had a rigor, after which it fell as low as 95·6. Rigors recurred on March 4th, 5th and 7th, and irregular rises of temperature continued till March 11th, when the temperature fell to normal and did not rise again. The rigors did not occur at any regular time of day, taking place sometimes in the morning, sometimes in the evening. Dr. Taylor refers to another case in which a single rigor with temperature of 105 occurred on the third or fourth day of convalescence without any further symptoms.

Dr. Poole's cases gave eight instances of rigors connected with an attack of typhoid fever. The following are brief details of these cases:—(1) Female, aged 20; rigor on fifth day of left femoral thrombosis and in second week of convalescence. (2) Male, aged 39; eleven rigors between 32nd and 44th day of illness, associated with left femoral thrombosis and non-purulent pleural effusion. Thrombosis of the right femoral vein occurred later, but without rigors. (3) Male, aged 35; two rigors on the 18th day of the disease, attributed to mental shock. (4) Female, aged 19; rigors on the 14th and 17th day of the fever. (5) Female, aged 34; several rigors before admission to the hospital, and four after. The last rigor occurred shortly after two slight hæmorrhages. The left femoral vein became thrombosed during convalescence, but there was no return of the rigors. (6) Boy, aged 14; four rigors during first week of severe relapse and another eight days later. Three of these occurred within fifteen and eight hours of the administration of a dose of phenacetin. (7) Boy, aged 4; rigor on tenth day, attributed to constipation. (8) Female, aged 44; two rigors on second and eighth day after the onset of thrombosis of the left saphenous vein. The second, fourth, fifth, sixth, and eighth patients were neurotic and excitable, and the first five of these had had very severe attacks of fever. No deaths occurred.

Amongst the other complications observed by Dr. Poole may be mentioned hyperpyrexia (temperature over 106 in three cases); pleurisy (five cases); severe mental disturbance (five); jaundice (two); severe and persistent vomiting (one); parotitis (one); local peritonitis (one); abortion or premature labour (two); and hæmaturia, perichondritis of the thyroid cartilage, mastitis and corneal ulcer, of each of which one example was observed.

5. *Desquamation.*—Dr. Remlinger came across six instances of desquamation in 706 patients suffering from typhoid fever. All the cases were of a grave nature, and in all the fever and convalescence were unusually prolonged. The phenomenon was invariably first noted at the period when the temperature first began to descend. It began and was most marked at the sides of the thorax and abdomen, and was limited to the trunk, except in one case in which it extended to the limbs. It was accompanied by alopecia in three instances. Dr. Remlinger is inclined to dismiss the theory that desquamation in typhoid is the result of sudamina, and to attribute it to a cutaneous trophic change, analogous to that which often determines loss of the hair in these cases.

6. *Glossitis*—Dr. Campbell Thomson records a case of typhoid fever in which acute glossitis set in shortly before death. The patient was admitted into the Middlesex Hospital, on Nov. 17th, 1899. The attack was a severe one, and the prognosis bad throughout. On December 17th, at 7 p.m., the tongue—which a few hours before had been examined and found free from swelling—was observed to be swollen, the left half of the organ alone being affected. At 10 p.m. the swelling had increased and involved both sides. There was no fluctuation. The tongue was punctured, but a small quantity of blood only escaped. Death occurred shortly afterwards. Reference is made by Dr. Thomson to a case recorded by MacCrae, in which glossitis was the first sign of a relapse setting in after 24 days of normal

temperature, and in which diminution in the swelling with ultimate recovery followed the operation of puncture. The latter writer also quotes a case of Nichols' of "septic infection in typhoid fever," in which two days before death swelling of the right half of the tongue was noted.

PURPURA AS A SYMPTOM.

PART II.

BY DOUGLAS STANLEY, M.D., M.R.C.P.

(Continued from page 359, Vol. xlvii.)

IN certain cases purpura appears simultaneously with visceral lesions, and the two may be regarded as concomitants. In these purpura does not seem to be so much a symptom of the disease as an integral character. Oddo and Olmer (*op. cit.*) consider that renal lesions are the most frequent concomitants of purpura, lesions which are not necessarily Brightic in all their characters. Gilbert (*Revue Mensuelle*, 1877) describes under the title of "Petechial Rheumatism" cases in which purpura, albuminuria, and hæmaturia appear in the course of arthritic affections. Similar instances are described by Mollière and Renaut (*Annales de Dermatologie*, 1878, and referred to by Oddo and Olmer) in which purpura and albuminuria appeared together. Another case is as follows:—Purpuric eruption on all four limbs, subsidence of eruption, albuminuria, reappearance of eruption with great increase in renal symptoms, pyrexia and headache, marked hæmaturia, alternate increase and decrease in albuminuria. Three years later no symptoms of any kind, no albuminuria. This case, quoted from Mollière by Oddo and Olmer, is interesting, as showing such a marked series of symptoms with apparently complete recovery. These authors give details (*Arch. Gen. de Méd.*, Mar., 1900) of a case under their own observation in which purpura appeared with symptoms of nephritis and aortic incompetence. In this instance also there was alternate disappearance and reappearance of the purpura and hæmaturia. The authors classify such cases as follows—(*a*) *Transitory* cases; in these there is slight albuminuria with purpura and no other manifestation of nephritis. (*b*) *Subacute* cases; in these there is abundant albuminuria casts, œdema, pallor; cases which are certainly brightic in their nature, and which show periods of increase in which the purpura and other symptoms become worse. Such cases show *post mortem* marked renal disease. (*c*) *Hæmaturic* cases; in this last division are placed cases in which there is hæmaturia of great intensity which is out of all proportion to other symptoms. Such cases are not to be confounded with purpuric hæmaturia from which they differ by the presence of albuminuria in the intervals of the attacks.

Liver.—From what has been already said it will be clear that there is a close connection between liver lesions and purpura, that this latter is in fact a marked symptom. How often purpura and a concomitant liver lesion occur is much more difficult to say than in the case of the kidney. There are some cases recorded in which jaundice appeared in the course of a purpuric outbreak. (It is open to question if anything is to be gained by trying to separate cases in which purpura appears as a symptom in the course of a liver lesion, from others in which the order is reversed. It is not always possible to say that a liver lesion is not present previous to the appearance of purpura.)

Spleen. With the exception of certain cases of infection it is doubtful if there is any interdependence between the spleen and purpuric eruptions. The frequent appearance of purpura in certain anæmic diseases has been mentioned, but in these the purpura is evidently a sequence.

In connection with the alimentary tract a curious series of symptoms has been described by Henoch (*Berl. Klin. Woch.*, 1868), and Binet (*Revue Méd. de la Suisse Romande*, 1886), and quoted by Oddo and Olmer (*op. cit.*), consisting in the occurrence of gastric crises with severe vomiting, hæmatemesis, collapse, intense pain in the epigastric region; the intestine becomes distended with gas; there may be diarrhœa and even intestinal hæmorrhage. A purpuric eruption appears on the skin. Different explanations have been given for these cases—that they are due to medullary lesions, as in certain diseases of the nervous system, or that they may be due solely to some infection. Neither hypothesis seems satisfactory. Oddo and Olmer suggest a general autoxic condition originating in the alimentary canal and possibly acting on the nervous system. (Such a sequence is no doubt possible, but do not these authors err in the direction of drawing too fine differences, by placing in a special sub-division a few cases of purpura simply because there are symptoms in the alimentary system somewhat more marked than usual?)

Meningo-myelitis and purpura are occasionally concomitant lesions, and in them the purpuric eruption may be of great intensity. An interesting case is quoted by Oddo and Olmer (*op. cit.*, p. 343). A labouring man, aged 34, drank about a litre of water from a drinking fountain. Two hours after he was suddenly taken with severe colic with much vomiting and nausea. Somewhat later there was severe diarrhœa. The following morning an abundant purpura was noticed on all the limbs; epistaxis also occurred during the day. He rapidly fell into a typhoid state; the purpuric patches became more marked, appearing everywhere. The pulse could not be counted; there was hæmaturia. Signs of pneumonia showed at the bases of the lungs. The patient died in two days. On *post mortem* examination there was blood-stained effusion in the pericardium. Both lungs were intensely congested, and the right lower lobe was consolidated. Kidneys congested, and spleen very large and very friable. There was intense congestion of the cerebral and spinal meninges, while there was purulent infiltration of the spinal from the 5th to the 10th dorsal. There was a diffluent condition of the cord in the same region. Bacteriological examination of the blood from a purpuric patch gave inconclusive results, but cultures taken from the blood of the liver, the spleen, and the lung showed streptococci and pneumococci, as also a species of coccus not recognised. The cerebro-spinal fluid showed pneumococci. (The report of this case gives no information as to the elements of the blood. It would have been very interesting to know if there was any marked leucocytosis. Cases somewhat similar, though not so rapid, have been regarded as Acute Leukæmia.)

According to Oddo and Olmer, these cases of purpura in the course of which a large and serious hæmorrhage into some viscus or organ, should be placed in a division by themselves. The connection with such hæmorrhage seems a somewhat ambiguous one. Thus at times large hæmorrhages occur under the dura mater, or even into the meningeal tissue itself. The spinal dura mater seems far more rarely affected than the cranial. (In some cases these hæmorrhages seem to be of the nature of hæmatoma of the dura mater, and may cause a marked degree of paralysis of the opposite side.) In other cases there may be hæmorrhage into the white substance of the brain, causing permanent paralysis. In the case of the cord the same conditions may exist, giving rise to hæmatomyelia. Taken as a whole, however, there is a general consensus of opinion that large hæmorrhages into the main portions of the central nervous system are rare. Multiple small foci of hæmorrhage appear to be more common.

Some very interesting cases of cardiac hæmorrhage are recorded, and Oddo and Olmer refer to them. It is of course common to find multiple sub-pericardial hæmorrhages as already mentioned, but those now referred to are different. They consist in large hæmorrhagic patches in the myocardium. I have found as many as seven or eight hæmorrhages into the substance of the left ventricle; they are brilliant and well defined as a rule and situated in the thickness of the wall.

It is interesting to ask what changes may take place in organs as the result of purpura. Oddo and Olmer place Visceral Sequelæ under a special heading. There seems however to be little information available. Apert is quoted by these authors as having noticed a form of pigmentary cirrhosis of the liver continuing on after repeated purpura. The question is rather one for future observation.

The following are the conclusions to be drawn according to Oddo and Olmer as the result of their extensive researches on this subject. (*op. cit.*, p. 352.)

1. Purpura may appear without apparent alteration in viscera, but may be relative to certain visceral lesions.
2. Such relations may be very variable, the visceral lesion being prior, contemporaneous, or subsequent.
3. When prior, the visceral lesion may have been the point of entrance for bacterial infection.
4. In many cases the visceral lesion acts by merely altering the nutrition through auto-intoxication or otherwise.
5. In a large number of cases the previous visceral lesion has a less direct action on the other tissues. There is perhaps rather an induced predisposition caused by the lesion.
6. In other cases there is a concomitant visceral lesion and purpura, both occurring equally. In this class are many cases of renal disease, but also gastro-intestinal, hepatic, pulmonary, and cardiac cases.
7. In some cases visceral hæmorrhage appears as an unusual feature in some particular cases. Lastly, it is possible that a remote series of changes may be set up as the result of purpura in some organs.

REVIEWS.

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ULCER OF THE STOMACH AND DUODENUM AND ITS CONSEQUENCES.*

THIS is a very excellent book. It gives a lucid and critical account of the facts at present known concerning a most important subject, and makes not a few additions of its own to those facts. But perhaps its chief merit is that it brings together a large number of scattered observations related to the subject of the work, and thus gives a picture of gastric and duodenal ulcer and their results far more thorough and complete than is to be found in any English book with which we are acquainted.

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* Ulcer of the Stomach and Duodenum and its Consequences. By Samuel Fenwick, M.D., F.R.C.P., Consulting Physician to the London Hospital, and W. Soltau Fenwick, M.D. Lond., M.R.C.P.. Senior Physician to the London Temperance Hospital, Physician to the Evelina Hospital for Sick Children. London: J. and A. Churchill. 1900.

The subject matter is divided into four parts, namely, pathology and etiology, acute and chronic ulcer of the stomach and duodenum, and the sequelæ of chronic ulcer.

In dealing with the morbid anatomy of gastric ulcer the authors call attention to certain differences in the characteristics of the acute and chronic variety. A collection of 1015 cases gathered from various sources merely supports the ordinary statement that gastric ulcer is usually situated in the region of the pylorus and lesser curvature, nearly 76 per cent. of the cases occupying this position. Many of these figures, however, are obtained from sources in which no distinction is made between the acute and chronic variety, and further recourse is therefore had to a series of 109 cases—39 acute and 70 chronic—obtained from the records of the London Hospital. Dividing the stomach into three imaginary zones, termed cardiac, middle, and pyloric respectively, it was found that of the 70 cases of chronic ulcer 53 occupied the pyloric, 7 the middle, and 10 the cardiac zone of the organ. On the other hand, of the 39 acute cases, the numbers in the same zones were 13, 14, and 12 respectively. The acute ulcer thus appears to occur in nearly equal numbers opposite any part of the long axis of the stomach. In both cases the great majority of the ulcers lay nearer the lesser curvature and on the posterior surface. Certain other anatomical differences are also to be noted. Thus, when two acute ulcers occur in the same stomach they are usually situated opposite one another on either side of the lesser curvature and near the cardia, that on the anterior surface being usually of the more recent formation. Double chronic ulcers, on the other hand, are generally situated close together on the posterior wall and near the pylorus. Actual involvement of one or other orifice is not infrequent in the chronic variety, and is about twice as common in ulceration of the cardiac portion of the stomach as in that of the pyloric region. Again, whereas the acute ulcer usually perforates in the cardiac half of the stomach, close to the lesser curvature and on the anterior surface, perforation in the chronic variety usually occurs near the pylorus, on the posterior aspect, though also towards the lesser curvature.

Endeavouring to explain the circular shape of gastric ulcers, the authors have made certain experiments which appear to show that there is a natural tendency for ulcers of the stomach to assume this shape whatever be their origin, and they are of opinion that vascular occlusion is by no means a necessary preliminary. They explain this tendency by the equal retraction in all directions which so highly elastic a tissue as the gastric mucous membrane is likely, when wounded, to undergo, and they call attention to the fact that, if an ulcer be irregular, it usually presents thickened and adherent edges, which must interfere with retraction. Further experiments suggest that the well-known conical shape is due to a varying degree of contraction of the muscular fibres at different depths, and the writers add that it is only in the pyloric region, where the muscular tissue is thick, that an ulcer acquires the typical funnel-shape.

Death from hæmorrhage occurred in 18 out of 112 fatal cases of gastric ulcer at the London Hospital, and in another series of 298 necropsies on cases of gastric ulcer, 56 of the patients died from hæmorrhage. These cases, however, were nearly all of the chronic variety, whereas only 3 per cent. of the authors' acute cases died from hæmorrhage. Out of 74 fatal cases of hæmorrhage, the ulcer was situated near the lesser curvature in 54 per cent., near the lower border in 6 per cent., and on the posterior wall in 40 per cent. A branch of the coronary artery was opened in 48 per cent. of the cases, the splenic artery being that next most frequently attacked. Hæmorrhage occurred in 26 per cent. of the authors' cases of acute, and 40 per cent. of the chronic cases of duodenal ulcer. The percentage death rate was the same, namely, 35 for both varieties of the disease. The bleeding ulcer was usually situated on the posterior surface of the gut.

The chapter on Pathogenesis is very interesting, and is especially valuable in its demonstration of the very various conditions from which gastric ulcer may arise. These conditions comprise occlusion of a nutrient vessel, however arising, hæmorrhage into the walls of the stomach, inflammation, mechanical injuries, chemical and thermal injuries, bacterial necrosis, and disease of the solitary glands. With regard to the last-mentioned lesion, some interesting observations are recorded. By means of a special method of preparation, the solitary glands were carefully counted. It was thus found that before the age of seven months the glands were generally small and ill-defined, and could be best demonstrated in the region of the lesser curvature. Between the ages of one and ten years they numbered from three to seven in each square centimetre in the cardiac zone, rather less in the middle third, and from eight to fifteen in the region of the pylorus, again near the lesser curvature. From puberty onwards the number tends to diminish, and the glands retreat from the cardiac towards the pyloric zone. After the age of forty it was often impossible to discover their presence in the cardiac two-thirds, whilst in the pyloric region the number was greatly reduced. The correspondence between the situation of these structures and that of the chronic ulcer is a fact of no little importance in considering the pathogenesis of the affection. Many observations on the condition of the solitary glands in disease are added.

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In dealing with the symptomatology of gastric and duodenal ulcer the acute and chronic varieties are rightly considered apart, each with great fulness of detail. The subject is too large for any criticism of individual points, but a most admirable account of these matters has been compiled. No less admirable is the last section on the sequelæ of chronic ulcer, dealing with perigastric adhesions, the results of cicatrisation, hypersecretion and gastric catarrh, tetany and other nervous disorders, perigastric and duodenal abscess, gastric fistulæ and tuberculosis, cancer and pernicious anæmia in their relation to gastric ulcer.

A TEXT-BOOK OF MEDICAL TREATMENT.*

THIS book forms an interesting contrast to Dr. Mitchell Bruce's admirable "Principles of Treatment" published in the early part of the year. Those who have read the latter will remember that it has for its main object the analysis and exposition of the principles on which medical treatment is or should be based, and that the comparatively few chapters on the treatment of special diseases are appended more as illustrations of the foregoing exposition than as affording any systematic treatise on practical therapeutics. Dr. Tirard's volume is laid out on precisely opposite lines. Comparatively little is said about principles, although the aim of the various measures recommended is made sufficiently clear. But the book is essentially an expansion of the very inadequate sections on treatment met with in text-books on medicine. The two works may thus be taken almost as complementary to one another, and might well be studied together.

The only adverse criticism that we should be inclined to pass on Dr. Tirard's very able work is that it may perhaps tend to confirm the medical student in his unfortunate habit of looking upon treatment as consisting essentially in the ordering of medicines. It is true that not a little consideration is devoted to general measures, but on the whole these seem to us to be given too small a place in the scheme of the work and often to occupy the wrong place, namely, the end rather than the beginning of the instructions. The tendency of students to ignore these measures which are of such great importance in medical treatment may thus be fostered.

The first two chapters deal with the circulatory disorders and the anæmias and diseases of the thyroid and supra-renals. Some few omissions are here and there to be noted, and one of some importance appears to us to be the absence of all mention of rest in the treatment of chlorosis, a measure without which the administration of iron is sometimes of but little effect.

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* A Text-Book of Medical Treatment, Diseases and Symptoms. By Nestor Tirard, M.D. Lond., F.R.C.P., Professor of the Principles and Practice of Medicine, King's College, Physician to King's College Hospital and Senior Physician to the Evelina Hospital for Sick Children. London: J. and A. Churchill. 1900.

Three chapters are devoted to the diseases of the respiratory system, and these give a very good account of the treatment of the various conditions. We may note in passing, however, the slight prominence which is given to change of climate and air in the treatment of asthma, and the absence of reference to soil and height above the sea-level as elements for consideration in the choice of a place of residence for asthmatics.

The chapters on the alimentary system are in all ways admirable. The consideration of the various disorders, especially those of the stomach, is very full and complete, and much excellent advice is to be found in these pages. Dr. Tirard is to be congratulated on the manner in which he has dealt with a very difficult subject.

Passing over the diseases of the kidney, we may call attention to the excellence of the sections on the treatment of nervous disorders. We hope, however, that Dr. Tirard's somewhat pessimistic view of the prospect in cases of epilepsy is not to be taken too literally, and that it is not so "extremely rare" for an epileptic patient to be cured "by any treatment" as he is inclined to believe. Here again, too little is said of the general management of a case. The frequent tendency of epileptics to eat too heartily should, we think, be more definitely alluded to, and the whole question of control, especially in the early stages and in childhood, is left unmentioned. This point is one of real importance. The habit of non-interference with the eccentricities and wilfulness of epileptics for fear of bringing on an attack is productive of much harm, and no more important advice can be given to parents in the early stages of epilepsy than to exercise rigid control and to enforce stern discipline even at the expense of increasing for a time the excitement of the patient. The excellent results obtained at epileptic colonies and the usefulness of routine employment should surely also have been referred to.

The remainder of the book is given up to the treatment of the specific fevers, the arthritic and hæmorrhagic diseases, and the two varieties of diabetes. Especial praise may be given to the full consideration of the measures useful in cases of tuberculosis, but all the sections are good.

The book forms a really valuable addition to the list of therapeutic treatises, and will, we are sure, meet with a very hearty reception.

THE SURGICAL DISEASES OF THE GENITO-URINARY TRACT.*

THIS treatise is a full and complete account of our present up to-date knowledge of diseases connected with the Genito-Urinary Tract. The author brings to bear on this subject, very largely, cases which have come under his own observation, and with infinite care has selected good examples of the various conditions, besides which, he quotes and is thoroughly conversant with, the literature of this extensive branch of medical science.

The print is good and the illustrations are to the point. Most of them, however, are borrowed from recent writers of the subject. In two cases at least, the illustrations are badly named, as on page 316 "a phagedenic bubo" is placed over the base of the penis, and again, on page 931, an encysted hydrocele of the testis is probably intended for an encysted hydrocele of the epididymis, though the two conditions are not differentiated in the text. The terms employed in many cases remind us of the loose pathological phraseology of twenty or more years ago as peri-urethral "phlegmon;" "chancroidic" germ; syphilitic "prodromes" for syphilitic fever; syphilitic "neoplasms" for simply chronic inflammatory swellings due to the poison of syphilis, and "encephaloid" as a pathological entity whether sarcoma or cancer.

The chapter on Syphilis is full and contains much good reading. The author has penetrated well into the writings of all the well-known syphilographers from whom he quotes abundantly. The author steps on to rather hypothetical ground when he says, on page 337, that "Malformations, such as talipes, epispadias, hypospadias, spina bifida, and other results of maldevelopment may possibly owe much to a tainted ancestory. Rickets and scrofulosis are probably in many cases hereditary syphilis *en masque.*" He truly states our present position in regard to syphilis, when he says, "However deficient though we may be in positive knowledge of the nature of the syphilitic micro-organism, we at least have tolerably definite views of the manner of its action."

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* The Surgical Diseases of the Genito-Urinary Tract—Venereal and Sexual Diseases A Text-Book for Students and Practitioners. By G. Frank Lydston, M.D., Chicago. Philadelphia, New York, Chicago: F. H. Davis Company.

In the chapter on Diseases of the Testis, we find the most frequent cause of orchitis given as mumps, while it is stated only occasionally to be due to injury. If these statements were reversed we think it would be nearer the mark. Again, on page 948, epididymitis is frequently attributed to rheumatism or gout, especially in dispensary practice. We think where the cause cannot be made out, and after all probable causes have been clearly eliminated, it is better to leave the purely hypothetical alone and classify such a group as epididymitis due to cause undetermined. Again, in the same chapter, on page 981, it is stated: "Typic sarcoma of the testis is very rare and blends so intimately with true cancer that it is rather indefinite as an entity." Such a statement is scarcely a fact, for in the first place sarcoma, though not common, is not even rare, and in the second place, the majority of these are perfectly definite and distinct from cancer. They occur in lads and young adults and are mostly of a small round cell formation, they are of rapid growth and may affect both sides in sequence. Cancer on the other hand, though it may occur, has up to now but few times been demonstrated if at all. On page 992, two-and-a-half pages are taken up in describing what is now quite an obsolete method of dealing with a varicocele, viz., by subcutaneous ligation. Such a method should in the light of our present technique, perhaps only be mentioned to be put on one side. It is recommended

1. for mild cases; 2. where objection is made to an operation; 3. for economy of time; 4. in the absence of facilities for aseptic surgery; but it can be easily seen that if patients are to be dealt with at all, especially in operations of choice, they must have the best means that surgery can give them and have a clean open incision.

On the whole the book is good and sound and can be recommended to students of medicine whether qualified or not.

ANÆSTHETICS,
THEIR USES AND ADMINISTRATION.*

THIS manual having been out of print for some time has now been brought up to date by the inclusion of much recent work on Anæsthetics. "The main additions are descriptions of methods of giving nitrous oxide in combination with oxygen, either in combination with oxygen, Dr. Flux's open method of giving nitrous oxide, Schleich's solutions for general anæsthesia, the infiltration method for producing local anæsthesia, and Bier's method of intra-thecal cocainisation, and the methods recently introduced for prolonging anæsthesia under nitrous oxide." The author's own views on the science and art of his subject are clearly and decidedly set forth as becomes a teacher and high authority. Experience has shown him that in cases of lung and pleural disease ether can be well borne without fear of after trouble when it is administered well diluted with oxygen. The oxygen seems to do away with the cough, cyanosis, and spasm which ether tends to cause in these cases. In ordinary cases more profound anæsthesia can be attained by the addition of oxygen. Rectal etherisation has answered well in the author's hands, for oral and laryngeal operations, for staphylorraphy, and in operations for empyema. The method requires extreme care and some experience; and the administration must be conducted slowly. An ingenious apparatus which he has devised is described. Many severe after-effects are mentioned, and several fatalities are stated to have occurred.

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* Anæsthetics, their Uses and Administration. By Dudley Wilmot Buxton, M.D., B.S., M.R.C.P. Third Edition. 1900. London: H. K. Lewis.

In the description of the use of Clover's inhaler, it is advised that after the application of the inhaler to the patient's face, and the allowance of a little breathing in and out of the bag "the indicator is next moved so that the indicator points to figure 1," and after tolerance at 1 is attained the indicator is made to point to 2. This procedure seems to us to be too rapid and likely to cause coughing, spasm and other disagreeable effects. We have always been taught to mentally divide the spaces between 0 and 1 and 1 and 2 into quarters or even eighths and to accordingly move on the reservoir after every breath or two. The latter is much the better way of the two.

There are interesting chapters on Local Anæsthesia, and Medico-Legal questions. The book is of very convenient size, well printed, and contains many excellent figures, chiefly of apparatus. Altogether it is an admirable manual of the subject of Anæsthetics.

THE PATHOLOGY AND TREATMENT OF SEXUAL IMPOTENCE.*

THE subject dealt with in this work is sexual impotence of the male, and as is usual in compilations of this nature there is too much protestation at the beginning. That there are not clinical lectures to students on sexual impotency is a fact due to the wide ætiology of impotence and the difficulty of gathering material for such lectures, and perhaps not to any prudery on the part of medical professors. The treatment of the matter in this book is from the view of an Austrian medical man, and is not at all like the average position the medical profession of England take.

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* The Pathology and Treatment of Sexual Impotence. By Victor G. Vecki, M.D. From the Second German Edition. London: Rebman, Limited.

The author was in the Paris Salon in 1878. A great master, "to whose words a crowd of artists were eagerly listening, said, 'That painter must be impotent.' To a question of mine the master replied that he was able to tell by a picture, not only whether it was painted by a young man or an old man, but also the condition of the artist's sexual power. To-day I give full credit to this assertion." This is very like Mantegazza, Krafft Ebing, and Max Nordau; and although there may be a substratum of truth in it, still the English view that this is outdoing Sherlock Holmes will probably prevail in the end.

Of course there is a great deal of information in the work, but in many places there is much vague generalisation and moralisation and sophistry by men of another age.

The author actually arrives at the conclusion, contrary to the opinion of some ancient man whom he quotes, that excessive venery in itself will not cause gonorrhœa. This is rather late onsidering the gonococcus exists to view.

"Thus I have no great faith in absolute continence, and believe continent, with very few exceptions, to be onanists." He ocates copulation outside of wedlock whenever a man has ırnal emissions, which he is pleased to prejudice by calling pollutions.

xual faculties not kept in sufficient practice are weakened ." Sir James Paget expressed the English view when that continence did a man no harm even when con- ıg (as seen in priests and some of our generals) and he utterly repudiated the idea of atrophy or weakness of the genitals caused by continence, that is, anything more than a month of married life will put right again. The treatment is well given and some apparatus mentioned which might well be left out, as our insular view is that it were better no sexual congress took place at all than that it should be mechanically effected.

It is a great desideratum that a standard work on male and female impotence and sexual subjects generally should be written by some competent English author.

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LECTURES ON CLINICAL MEDICINE.*

Dr. Lindsay Steven remarks in his preface that these lectures do not record anything very new. But originality of material is not expected in a series of Clinical Lectures, nor does its absence detract from their value. Given a number of interesting cases and a good discussion of the points raised in the mind of the physician whose duty it is to diagnose and treat them, the lectures are sure to be worth reading. Dr. Steven's lectures admirably fulfil these conditions. Many of the cases recorded are of great interest, the field covered by them is a wide one, and the discussions, though sometimes leaving something to be desired in point of fulness, are thoughtful and instructive.

The first lecture deals with a case of Landry's paralysis, of which unfortunately no *post mortem* examination was allowed. The third records Dr. Steven's experience of the use of the Schott method of treatment in three cases of rheumatic cardiac valvular disease. From this he arrives at an opinion on the whole unfavourable to the method, although he is careful to disclaim any intention of denying its use in certain cases. He is decidedly of opinion that no immediate alteration in the shape or size of the heart is produced either by the baths or by the exercises. Several cases of nervous disease form the subject of other lectures, but in these the discussion of the points of difficulty strikes us as often somewhat too brief. Many of the cases are, however, of much interest, and special mention may be made of a case of Hypertrophic Osteo-Arthropathy with absence of pulmonary disease, and one somewhat unhappily termed Spastic Paraplegia, the symptoms of which were believed to be due to a progressive myopathy. One of the most interesting of the lectures describes a case of Scleroderma with pronounced hemiatrophy of the face, body, and limbs, and an appendix relates the result of the *post mortem* examination in which definite changes were found in the cells of the anterior cornua and in the vessels of the cord, medulla, and pons. Mention may also be made of two cases of hæmatemesis due to a "pore-like" erosion of branches of the gastric arteries.

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* Lectures on Clinical Medicine delivered in the Glasgow Royal Infirmary. By John Lindsay Steven, M.D., Physician to the Glasgow Royal Infirmary, Lecturer on the Practice of Medicine, Queen Margaret College, University of Glasgow. Glasgow ; Alex. Macdougall. 1900.

Our account does not by any means exhaust the list of lectures, of which there are fifteen in all, but it is sufficient to show that a very varied and interesting series of cases is described.

PRACTICAL GYNÆCOLOGY.*

THIS work is intended to be a book of ready reference and to give the general practitioner a quick idea of what should be done and when to call in the specialist, and it admirably fulfils its aim.

The author says that it is better to operate by the abdominal method even when removing cirrhotic ovaries for dysmenorrhœa. Perhaps this is not the present opinion of gynæcologists, because the vaginal route is so safe and simple when once the necessary practice and experience has been obtained that its avoidance of an external scar and future hernia give it the preference over the abdominal route.

Chlorosis is defined as follows:—"Spanæmia (?), 'green sickness,' associated with diminished amount of red blood discs." There is nothing wrong here, but it is scarcely a good definition.

Silver wire and Aveling's shot and coil are advocated in repair of perinæal lacerations, and in some cases division of the sphincter ani on each side to relieve strain. No one could perform the operation from the description given, and this is perhaps the author's intention, for he finishes by saying that Lawson Tait's operation is the best, and by not describing it.

"Phlegmasia Dolens.—Definition: Peripheral venous thrombosis; white leg; the formation of thrombi in the veins of the lower extremities." This requires some alteration.

The book is well printed and got up, and the non-operative treatment is well given.

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* Practical Gynæcology. By Heywood Smith. Second Edition. London: Henry J. Glaisher.

BURDETT'S OFFICIAL NURSING DIRECTORY.*

We have received a copy of the third issue of the Nursing Directory, which, like its predecessors, contains particulars of the various Training Schools and Nursing Institutions, a Directory of Nurses, giving addresses, appointments and places of education, and a brief account of the principal laws and customs affecting the nursing profession. The Directory is a very useful compilation, and would be still more so, as its managers point out, if certain almost necessary sources of inaccuracy and incompleteness could be eliminated. But, considering the constant and inevitable change of address, it is, we fear, impossible to keep in touch with all those nurses whose names appear in the Directory. Hence the large number from whom no answer to the annual circular has been received. The managers also allude to additional difficulties arising from the inaccuracy with which their application forms are often filled up. Even with these inevitable sources of error the book is a valuable one, and thanks are due to those who have undertaken its preparation.

BRADSHAW'S DICTIONARY OF BATHING PLACES, Etc.†

We have received a copy of the present year's edition of this most useful "Dictionary." No pains have been spared to bring it up to date, and to ensure the completeness and accuracy of the information contained. The valuable nature of the compilation and the low price at which it is offered should ensure a steadily increasing circulation.

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* Burdett's Official Nursing Directory, 1900. Compiled and Edited, with the Assistance of a small Committee of Medical Men and Matrons. by Sir Henry Burdett, K.C.B. London : The Scientific Press, Limited.

† B. Bradshaw's Dictionary of Bathing Places, Climatic Health Resorts. Mineral Waters, Sea Baths, and Hydropathic Establishments. London : Kegan Paul, Trench, Trübner and Co., Ltd. 1900.

A POCKET MEDICAL DICTIONARY.*

We have to record the appearance of a fourth edition of Dr. Gould's Pocket Medical Dictionary, which now contains the definition of 30,000 words. Numerous tables are also included, namely, of the arteries, muscles, nerves, micro-organisms, etc., and a list of drugs and their preparations, together with the doses according to both English and metric systems. The book is a convenient and useful one.

Obituary.

DR. GIBBS BLAKE.

We regret to record the death of Dr. James Gibbs Blake, which occurred at Bad Nauheim a few weeks ago. Dr. Blake had for some time been in failing health, and went to Nauheim in the hope of receiving benefit from treatment at that resort. This hope was, however, not fulfilled, and he succumbed to an acute attack of illness on the evening of May 27th, in the 69th year of his age.

Dr. Blake received his medical education at University College and graduated in the London University, being awarded the gold medal in surgery in the second examination for the M.B. degree. He took his M.D. in 1857. On coming to Birmingham in 1860 he commenced practice as a homœopathic physician. He took a keen interest in the management of the Homœopathic Hospital, of which he was one of the early medical officers. He also held for some time the post of medical officer to the Mason Orphanage, subsequently becoming consulting physician and trustee of that institution.

Dr. Blake's most important public work was done in connection with Mason College, of which he was one of the original trustees. He twice held the office of bailiff and took the keenest interest in the welfare and development of the College, making himself practically acquainted with the systems and working of many of the continental and American Universities in order the better to fit himself for the responsibilities of his office. His death will be widely regretted, and by none more than by his colleagues in the important work which has led to the establishment of the University of Birmingham.

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* A Pocket Medical Dictionary. By George M. Gould, A.M., M.D. Fourth Edition. Revised and Enlarged. London : H. K. Lewis. 1900.

VARIA.

We are requested by the Editors of the Journal of Laryngology, Rhinology, and Otology, to call the attention of specialists in these branches of the profession to the Appendix to the International Directory of Laryngologists and Otologists which is now in course of preparation. It is desired that the Appendix shall be as complete as possible, and all interested are requested to send in their names to the Editor, 129, Shaftesbury Avenue, London, W.C., without delay.

A "Voyage d'Étude Médicale" will this year be made to the various health resorts of the South-east of France. The excursion will be held from September 2nd to 15th, and will be under the personal direction of Dr. Laudouzy, the well-known Professor in the Paris Faculty of Medicine. These annual excursions are held with the purpose of enabling both French and foreign medical men to acquire personal experience of the various health resorts of France, and arrangements are made by which some teacher of eminence accompanies the excursion. The cost is 300 francs. Names of intending members should be sent to Dr. Carron de la Carrière, 2 rue Lincoln, Paris, and the amount of the subscription to M. l'Administrateur délégué des Voyages Économiques, 17 Faubourg Montmartre, Paris.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

Messrs. Burroughs and Wellcome send us samples of Urotropine and Codeine Tabloids. The former contain 5 grains each of urotropine, a drug which is of considerable efficacy as a urinary antiseptic and diuretic, though opinions are divided as to its power of dissolving uric acid. The tabloids of Codeine contain either ¼ or ½ grain of the alkaloid, and are a convenient form in which to administer this valuable sedative. We note that Messrs. Burroughs and Wellcome refer to its value in the treatment of morphinism.

The same firm also send us samples of their Opium " Enules " for rectal use. Each enule contains 1 gr. of extract of opium. The shape of these preparations is such as to render easy their introduction into the rectum and to ensure their retention.

Messrs. Ingram and Royle Limited send us samples of Littke's Hungarian Champagne, both the "Sans Sucre" and "Extra Sec" brands. The *Lancet* analysis of these wines is of a very favourable nature, and strongly supports their claim to be considered a good form of stimulant for medical use. The champagne is palatable and easy of assimilation.

New Books, etc., Received.

From William F. Clay—

Manual of Midwifery, for the use of Students and Practitioners. By W. E. Fothergill, M.A., B.Sc., M.D. Second Edition.

From John Bale, Sons and Danielsson. Ltd.—

Records from General Practice. By J. Kingston Barton, M.R.C.P. Lond, M.R.C.S. Eng., J.P.

From Alex. Macdougall—

Lectures on Clinical Medicine delivered in the Glasgow Royal Infirmary. By John Lindsay Steven, M.D.

From Kegan Paul, Trench, Trübner and Co., Ltd.—
B. Bradshaw's Dictionary of Bathing Places, Climatic Health Resorts, Mineral Waters, Sea Baths, and Hydropathic Establishments.

From the F. A. Davis Company—
Annual and Analytical Cyclopædia of Practical Medicine. By Charles E. de M. Sajous, M.D., and One Hundred Associate Editors. Volume v.

From the Scientific Press, Limited—
Burdett's Hospitals and Charities, 1900.

From Rebman, Limited—
Refraction and How to Refract. By James Thorington, A.M., M.D.
A Contribution to the Study of Epidemic Diarrhœa. By Arthur Newsholme, M.D. Lond., F.R.C.P. Lond.
The American Year-Book of Medicine and Surgery. Edited by George M. Gould, M.D.
The Pocket Formulary for the Treatment of Disease in Children. By Ludwig Freyberger, M.D. Vienna, M.R.C.P. Lond., M.R.C.S. Eng.

From J. and A Churchill—
Surgery: Its Theory and Practice. By William Johnson Walsham, F.R.C.S. Eng., M.B. and C.M. Aberd. Seventh Edition.

From Cassell and Company Limited—
Diseases of the Tongue. By Henry T. Butlin, F.R.C.S., D.C.L., and Walter J. Spencer, M.S., M.B. Lond., F.R.C.S.

We have also to acknowledge the following—
Conditions of the Throat and Larynx Simulating and Predisposing to Tuberculosis. By Lennox Browne. F.RC.S.E.
La Mortalidad de la República Oriental del Uruguay en el año, 1899.

⁂ Authors can have reprints of articles at the following rates:—

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The Subscription to the *Birmingham Medical Review* is 6s. per annum, post free.

NOTICE.—*All Communications, Exchanges, and Books for review, should be sent direct to the Printers and Publishers, Messrs. Hall and English, 71, High Street, Birmingham.*

THE

BIRMINGHAM MEDICAL REVIEW.

AUGUST, 1900.

ORIGINAL COMMUNICATIONS.

THE INGLEBY LECTURES.

ON THE COMMONER NEUROSES OF CHILDHOOD, THEIR PATHOLOGY AND TREATMENT.

BY O. J. KAUFFMANN, M.D., M.R.C.P. LOND.,
PHYSICIAN TO QUEEN'S HOSPITAL, LATELY PROFESSOR OF PATHOLOGY,
MASON UNIVERSITY COLLEGE, BIRMINGHAM.

LECTURE I.*

Mr. Dean and Gentlemen—

I desire to draw your attention to a large class of sufferers whose ailments inflict much distress on themselves and much anxiety on their friends and parents. The diseases with which I propose to deal are the so-called functional nervous disorders or neuroses of children, as distinguished from those diseases of the nervous system in which distinct and easily recognised changes can be found *post mortem* to account for the symptoms during life. I have thought it more interesting to treat in these lectures of a group of maladies of common occurrence, one or other of which must almost daily come under the observation of each of us, than to deal with rare and exceptional ailments, and I have been confirmed in my choice by the conviction that much is still to be learnt regarding the nature and causation of these neuroses, and much in regard to their correct and complete diagnosis, and that something still remains to be done in the way of treating them successfully, to which end a true appreciation of their nature is the first essential step.

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* Delivered on June 27th, 1900.

The disorders with which I propose to deal are the following: (1) chorea; (2) saltatory or salaam spasm; (3) tetany; (4) night terrors and dreaming; (5) nocturnal enuresis; (6) migraine and allied conditions; and (7) epilepsy. Dissimilar though these diseases may at first sight appear, yet they have several points in common. Thus they occur with greatest frequency in childhood, some, as chorea and nocturnal enuresis, being almost limited to that period of life as regards their onset. Further, they are more frequent in the female sex, and where this appears not to hold true entirely, as in migraine and epilepsy, it is nevertheless the fact that females are more disposed to be the sufferers during the time of adolescence. Lastly, I think that I shall be able to show that they have still more points in common, particularly in the matter of causation.

1. *Chorea.*—This is so common a disorder that I will not waste your time with a description of its characters. But I would like to draw attention to the different kinds of chorea which we encounter in practice. The following list comprises all the forms commonly connoted under the term chorea: (1) senile chorea; (2) hereditary chorea of middle adult life; (3) post-hemiplegic chorea; (4) chorea of pregnancy; (5) fright chorea; (6) hysterical and imitation chorea; (7) electrical chorea of Dubini and (8) rheumatic chorea and those choreas arising from scarlet fever, malaria, and possibly from other infective conditions. With the exception of post-hemiplegic and senile chorea all these are genuine functional nervous disorders. It is of course true that minute changes have been discovered in the brain in cases which have ended fatally. These microscopic changes, however, are not sufficient to remove the disease from the list of neuroses, nor have they as yet been made out with sufficient constancy to warrant the inference that they are the actual direct cause of the choreic movements. It will be noticed in looking at this list that, putting out of consideration for the moment the first three, we have to deal with two broad

classes of chorea. The first of these is psychical in its causation, at least as far as the exciting cause is concerned; the second class is clearly of quite different origin—namely, toxic. In the latter No. 7 and No. 8 are comprised; in the former No. 5 and No. 6; and No. 4 may belong to either the psychical or the toxæmic class.

A good deal of doubt has been expressed by different observers upon the alleged production of chorea by fright, chiefly on the ground that fright is very often asserted to have set up the disease in a child when closer investigation shows the cause of the fright to have been very slight. It must, however, be borne in mind that what may seem to a healthy adult to be a small or negligible cause for shock or fear may to the child have been a very great cause; or, to express it otherwise, what does not suffice to frighten an adult may produce very real terror in a child. There are, I imagine, few medical men of any experience who would not admit that fright is capable of producing genuine chorea, in the same way as we all know that it may, in certain conditions, set up paralysis agitans, dementia, genuine epilepsy, profound shock, and even death. However we may try to explain the manner in which fright acts, we are constrained to allow that it may result in these severe nervous disturbances, and more, that it may lead to disease which has a distinct anatomical lesion. Thus, for instance, Dr. Allbutt has described a case of chlorosis in which the anæmic condition was set up by great terror. Certainly the patient had on a previous occasion suffered from the same complaint, so that we must admit in this particular instance the presence of a strong predisposition. Now the question naturally arises whether fright or any other strong mental impression can create chorea in a child without there being any predisposition produced either by an hereditary, weak, and unresisting nervous system, or by a toxæmic condition which, though not obtrusive up to the time, has been quietly damaging the nervous centres for a period preceding the exciting cause. The evidence on this point is not sufficiently conclusive to warrant a categorical answer to the question, but I think that every now and again we meet with clear evidence that sharp mental impressions may set up chorea in children in whom nothing has before existed to make us suspect a disordered or hereditarily weak nervous system. In the majority of fright choreas, however, the evidence is very strong that an inherited or acquired predisposition is present. Apart from the agency of mental shock we have, however, the agency of toxæmia, and this cause furnishes a greater number of instances of chorea than does mental disturbance. A majority of the cases of chorea which are met with in this country show a history of some rheumatic affection, either pronounced, sharp, and severe, or insidious and lingering, and at other times so slightly pronounced as to answer to the name of "growing pains." A small number of the sufferers give strong evidence that scarlet fever was the source of the blood intoxication. In a certain proportion of the cases we can trace neither of these maladies nor any other infective disease, and the cause of the toxæmia remains undiscovered.

I would now like to bring to your notice a fact which has often arrested my attention in the out-patient room, when watching children suffering from chorea. This is the evidence of disordered digestion which we may observe in a considerable proportion of these patients. That sufferers from this disease are usually small, ill-clad, and ill-fed is generally admitted. Over and above this we may, however, see that they often have furred tongues and, what is very unusual in healthy children, distinct vascular stigmata on the cheeks. Inquiry will in the cases presenting these two signs nearly always elicit a story of indigestion and often of constipation. A considerable number of choreas have come under my notice presenting these appearances and giving a history of digestive disturbances. These facts naturally suggest the question whether disorder of digestion may not stand in some causal relation with chorea, and impossible as it is to prove such a causal nexus, there are nevertheless some points which, I believe, support the suggestion. Thus many of these patients showed in a marked degree the presence of indican in the urine, proving that a good deal of putrefactive material was absorbed from the bowel and passed through the liver into the general blood-stream, to be finally removed by the kidneys, but only after it had circulated through the tissues. It is true that in some cases presenting the same signs of indigestion no indicanuria can be found, but this is not surprising when we remember that profound digestive disturbances may exist without indican being discoverable in the urine. The positive evidence afforded by this body is valuable as an index of absorption; the negative evidence furnished by its absence proves nothing. I shall return later, in dealing with the general pathological aspect of these disorders, to the questions of indican and of absorption by the intestine of anomalous by-products of digestion; meanwhile there certainly is no improbability that chorea should be caused by a toxæmia due to putrefactive changes in the alimentary canal. The modern and most widely accepted explanation of the chorea which follows on acute rheumatism is that the phenomena of the disease are due to a toxic body contained in the blood and that this harmful material is a product of bacterial life. Now the putrefactive processes which occur in the intestine are likewise the work of bacteria, and there is every *à priori* reason to believe that the metabolic products of these microbes will act harmfully on the nerve centres if they be brought into intimate contact with them by the circulating blood.

Another consideration which has some interest is suggested by this—namely, the possible connexion between rheumatic fever and self-infection from the gastro-intestinal tract. It is true that we can generally trace the occurrence of a sore-throat at the commencement of an attack of rheumatic fever, but not always. When we can trace the inflammation of the tonsils or faucial regions we assume that the germs or their toxic products have gained access to the blood by way of these inflamed areas. But, as I have just remarked, this channel of infection not infrequently fails us. May it not be that in some instances rheumatic fever is set up by bacteria from the intestine effecting an entrance into the blood? The suggestion has a good deal of likelihood on its side, especially when we consider that there are several different clinical types of rheumatic fever, and that in the endocarditic and articular lesions of this disease several distinct kinds of bacteria have been discovered. However this may be, I have seen so much clinically of chorea combined with evidences of digestive disorder, as to make me believe that it is, in a considerable proportion of the total cases, set up by auto-intoxication from the intestine, and therefore further investigation in this direction seems to me to be desirable; and I feel convinced that any observer who will watch cases of chorea, bearing this point in mind, will soon be struck by the frequency with which confirmatory evidence will meet him. Accordingly I would wish to insert in the list of cases of chorea another heading—namely, "gastro-intestinal self-intoxications." I am not able to give statistics from any considerable number of choreas to show what proportion of them may with probability be assigned to gastro-intestinal self-intoxication. Some years ago, however, before my attention was directed to the importance of this cause, I found that out of 24 successive cases of chorea six gave a clear and undeniable history of the first attack being set up by fright or other mental shock; one was due to scarlet fever, one to typhoid fever, and one resulted from injury—namely, a sprained ankle, (This last case may perhaps be classified with the choreas produced by shock.) Eight cases showed evidence of endocarditis or rheumatic fever, or gave a history of the latter, and in seven cases no cause whatever could be elicited by inquiry or by auscultation of the heart. I now think it highly probable, in the light of more recent experience and further inquiry, that this group of patients owed their disease to toxæmia from disordered digestion.

2. *Saltatory Spasm.*—Closely allied with chorea is the curious nervous disorder which has been termed "saltatory spasm," or "jumping spasm," or "salaam spasm," from the jumping or curtseying movements which characterise it. The movements

vary a little in different cases, justifying now the one name and now the other. The gap between the common clinical picture of chorea and the rare one of saltatory spasm is bridged over by certain cases of so-called "hysterical chorea," as I will endeavour to show by citing an instance in point. Saltatory spasm is so rare in England that it hardly comes under the designation of a common neurosis, and it is introduced here mainly on account of its relationship with chorea. The only cases which have come under my personal notice are two, one in a woman, aged 36 years, and the other in a girl, aged 14 years, and since the disorder is so scarce I may shortly describe them.

Case 1.—A girl, aged 14 years, who had not begun to menstruate, and who presented no appearance of sexual maturity, had suffered for four days from the spasms now to be described. At irregular intervals, which, however, rarely exceeded 30 seconds, there was a sudden contraction of the flexors of the hips and of the knees. The contractions were only of momentary duration and instantly relaxed, but were often repeated so frequently as three times in five seconds. After such rapidly following movements there would be an interval of quiet, lasting perhaps half a minute, and this went on all day long and only ceased during sleep, when the muscles were completely at rest. The spasms were equally marked whether she stood or lay down; but their intensity varied, so that the effect on the body was not always quite the same. Generally the effect would be a bending of the trunk on the thighs, like a sudden and rapid bow; but on more forcible contraction of the muscles concerned the heels would be raised off the ground and brought down again sharply with a stamp, and on occasions the feet would both leave the ground completely for an instant, and a distinct jump was the result. At much longer intervals a spasm would affect the arms, the elbows being bent and the arms being folded across the chest by the action of the larger pectoral muscles. The more highly specialised limb muscles were free, and so was the face. The glutei and extensors of the hips contracted, but apparently only in re-establishing the balance of the body after the disturbing effect of the flexor spasm. There were no sensory symptoms, and the patient controlled the sphincters perfectly. Her mental state was curious. She answered rationally and even cleverly, spoke clearly and without any hesitation, and sang nicely with a good voice and particularly correct intonation when asked to do so. Occasionally, however, that is, several times in the day, she would suddenly and without any apparent reason—for instance, while she was being examined in the out-patient room—burst forth into song, a thing which, her mother said, had occurred only since the onset of the present illness. At intervals, too, she would break into a fit of loud laughter without rhyme or reason, but she did not have attacks of crying. She ate and slept well, and had a rosy, healthy, clean complexion, and was well built and well nourished. The history of the onset of this illness is interesting and ran as follows:—The girl was in good health until three weeks before her admission to the hospital. At that time she had a sudden fright and instantly screamed loudly, but then walked home and appeared to her mother to be in her usual health. On the day following the fright it was noticed that she was nervous and quiet, but her quietness was interrupted by loud fits of laughter, the reason for which could not be ascertained, and when anyone approached her she was liable to scream loudly. In this nervous and depressed condition, with the occasional outbursts just described, she continued until four days before admission, when the spasms made their first appearance. The little girl was naturally very intelligent, industrious, and quiet, and was her mother's right hand in the housework. She had previously to her present illness always enjoyed good health. The family history showed no special neurotic tendency. In hospital, kept quiet behind a screen, she soon recovered complete health, and though I have not seen her since, I have every reason to believe that she had no recurrence for at least a considerable time. A point of great interest in this spasm is the affection of the arms associated with that of the legs. It will be noticed that the form which it took was that of folding the upper limbs across the chest very much as the motion of humility, which is associated with the bowing of the trunk on the thighs in the performance of an Oriental salaam; in fact, but for the rapidity and jerkiness of the contractions they completely justified the appellation of "salaam spasm." Again, it is interesting to note the complete escape of the more highly specialised limb muscles as well as of the facial muscles; in fact, the muscular groups affected were those most elementary in development and least specialised in action. It would be easy to call the condition which I have described one of "hysterical spasm" in view of its mode of origin, and I have no doubt that by some it would be so named. But, on the other hand, we know that typical choreas are often set up in precisely the same way, and I do not feel inclined to describe this case as "hysterical spasm" any more than I would describe a chorea due to fright as "hysterical chorea."

Case 2.—The other instance of this affection, as I have mentioned, occurred in a woman, aged 36 years, unmarried, and small, badly nourished, and wizened in appearance. In her the muscles of the lower limbs alone were spasmodically affected, the arms and face escaping completely. The effect when the patient was standing was exactly the same as I have described in the case of the little girl. When the patient lay in bed the psoas contraction tended more to arch the lumbar part of the spine into a position of momentary opisthotonos, the thighs becoming the fixed points from which the muscles acted, and the same was noticed when she assumed the sitting position. When I saw her the spasm had lasted some months, but she could give no clear history of the onset, which appeared to have been gradual. The case came to my notice long before disturbance of the digestive functions in connection with these disorders had aroused my interest, and I am therefore unable to say whether any of the former were present. The malady proved very intractable, and after two months of treatment the spasm was practically undiminished.

These two cases are typical of saltatory spasm. It is plain that the mode of causation, in the first at least, was the same as in so many cases of chorea. In fact, it seems to me merely an accident that this little girl was attacked with the peculiar spasm described and not with ordinary choreic movements, and one would not be surprised, were the saltatory form commoner, to see it produced by precisely the same causes which give rise to chorea.

Case 3.—In order to show the close clinical connection existing between chorea and salaam spasm I will mention a case which was recently under my care at the Queen's Hospital, Birmingham. A single woman, aged 21 years, was admitted suffering from choreic movements affecting all the four limbs, the muscles of the neck, and, to a smaller extent, those of the face. The movements had the character of sudden sharp contractions, followed by momentary relaxation—in fact, they resembled nothing so much as the contractions produced by the sudden application and withdrawal of a faradaic current at frequent but slightly irregular intervals. The contractions of the neck closely resembled those of spasmodic torticollis. All these movements continued during sleep. The patient was fairly developed, well nourished, and in good condition. The complexion was good with the exception of a few venous stigmata on the cheeks. Her digestion was, according to her own statement, in good order, but her bowels during her sojourn in hospital required constant attention. There was no endocarditis and no history of rheumatism or of former chorea could be obtained. The onset of her illness was as follows. Six months before her appearance at the hospital, while she was in good health, she had been bitten by a dog. She was not much hurt but greatly frightened and she ran away. For some hours after the fright she continued to tremble, and for a few days continued in a very nervous state. Three or four days after the injury her back suddenly began to arch spasmodically and intermittently, especially when she lay in bed, and for a fortnight these spasms continued to spread so as to involve the limbs; but they were at the time of admission to hospital slightly subsiding. With the patient standing up no arching of the back could be seen, but there was distinctly every now and then a flexion of the trunk on the thighs of the same kind but of much smaller degree than in the two cases of saltatory spasm just mentioned, and the muscles producing this movement could be both seen and felt to contract. The patient also had retention of urine during her stay in the hospital. From this symptom she had suffered once before during an attack of influenza long antecedent to the present illness. She was but little benefited by a stay of seven weeks, during which everything I could devise was tried, and now she is still suffering in exactly the same manner, and also has attacks of retention of urine from time to time. The urinary difficulty of this patient is well worth noting; it varied between retention, which would trouble her for days together, and true suppression. Thus, after she had been an in-patient for about three weeks the quantity of urine, which up to that time had ranged within normal limits, suddenly fell to four ounces in the day, and she suffered from severe headache. Only a few drachms of urine could be evacuated by the catheter, and there was no palpable enlargement of either kidney. The condition passed off with diuresis. More often than this, however, there was mere retention of urine easily relieved by the catheter. Now this case, on the face of it, is one of hysterical chorea with hysterical anuria, and the character of the movements, their rhythm, and the history of the onset all support the diagnosis of hysteria. Moreover, the family history showed a predisposition to nervous disorder. The refractory character of this illness is likewise in keeping with what is remarked by Charcot on the intractability of certain hysterical affections. Yet the spasmodic movements continued undiminished while the patient was asleep, which proves that they were independent of any active encouragement on the part of the sufferer, and that the disease was as genuine a chorea as is any chorea the onset of which is determined by mental shock. I have quoted the case at length in order to show how close is the connection between ordinary chorea and so called hysterical chorea, and to demonstrate the clinical and etiological relationship between chorea and saltatory spasm, which latter was very closely approached in the present instance. This patient showed no indicanuria, but the venous stigmata on the cheeks, coupled with the stubborn condition of the bowels, gave good ground for suspecting a chronic auto-intoxication, and in the absence of the same it is quite possible that the original fright might have produced nothing more than a temporary shock.

3. *Tetany.*—This disease should rather be considered as a symptom, for although we do meet with patients in whom the spasm of tetany so predominates that all other signs of illness are overshadowed by it, yet such cases are rare. On the other hand, tetany is not so rare as one symptom forming part of a clinical picture in which the other symptoms and signs are of equal prominence. It is unnecessary here to describe the character of the contractures. The trunk muscles and those of the face generally escape, and it is only in very rare cases that the muscles of respiration are affected. The disease is most often met with in children, but it occurs also in women, and is, among adults, limited, so far as I have seen, to the female sex. The causes commonly assigned are the following:—(1) Catching cold; (2) rickets; (3) acute infectious diseases, such as typhoid fever and small-pox; (4) intestinal affections, as diarrhœa; (5) prolonged suckling and over-lactation; (6) pregnancy; and (7) Weiss has pointed out a peculiarly frequent sequence of tetany after extirpation of the thyroid gland. Sometimes tetany has been reported as occurring epidemically, but it is doubtful whether in these cases the spasm was not due to imitation.

Case 4.—With a view to show the connexion of tetany with another class of disease only indirectly referred to in the above list of causes I would quote the case of a nurse who came under my observation some time ago. She was a strong and healthy woman, but had caught cold and become hoarse a few days before I first saw her for violent suffocative spasm with much cyanosis. After the spasm she looked quite well and her healthy colour returned, but she was completely aphonic. A subsequent laryngeal spasm which I saw was accompanied by typical tetany-contractions of the hands and of the right foot, the left remaining free. The limbs affected were blue and cold, but recovered their natural colour and temperature when the dyspnœa ceased. The suffocation was apparently caused by an adductor spasm in the larynx exactly similar to that which is so familiar in children as laryngismus stridulus. For five or six days these attacks recurred both by day and night. During the whole of this time she had a moderate continued fever which ended gradually by lysis. The spasm in the hands, which occasionally came on in slight degree without the dyspnœic attacks, was invariably preceded by a sensation of numbness and tingling which gave her warning of its approach. After leaving her sick room this patient was weak, pale, and tottery, as though she had undergone a long and severe illness. Throughout, the lungs had presented no physical signs of disease. Here, then, was a typical case of tetany associated with laryngitis from cold and adductor spasm of the larynx, a symptom-complex which brings this instance of the disease very near indeed to those tetanies which occur in rickety children in whom both laryngismus stridulus and catarrhal laryngitis with stridulous spasm are exceedingly common.

Case 5.—Another case of this malady which was recently under my care is also worth noticing. An infant, aged one year, was admitted for well-marked, though not very severe, tetany. He was well nourished but showed distinct marks of rickets. In three days, the spasms having subsided, he was sent home. Ten days later he was readmitted for a recurrence of tetany. The stools were now loose and contained some orange-peel and other undigested food; they were greenish, mixed with mucus, and very offensive. The tetany now persisted for 11 days, being nearly always present in some degree, but generally appearing to cause no pain; the exacerbations, however, were painful. On the eighth day he developed a laryngeal cough, but had no laryngismus. Throughout there was an absence of fever, and gradually the child regained his normal health. In this case we have a combination of the symptom of tetany with several of its recognised causes—namely, gastro-intestinal disturbances, clearly provoked by unsuitable and indigestible food, shown by the stools, rickets, and most likely considerable laryngeal inflammation. I have never seen tetany occurring even in a rickety child without distinct catarrh of either the respirarory or the digestive mucosa, and it seems to me that not the rickety nutritional trouble but these catarrhs are the cause of the spasm, by inducing a toxæmia or a reflex irritation. We have seen that such inflammations can lead to tetany in the absence of rickets, and the truth is probably that both the latter disease and the tetany are common results of the catarrhal conditions. It appears more usual for such results to follow disease of the intestinal than of the respiratory mucous membrane.

Tetany is one of the diseases in which Albu has succeeded in isolating from the urine a toxic substance. In the light of other researches this result is not so important as might at first sight appear. I shall return to this subject when reviewing the general pathology of these neuroses. Meanwhile we find in the recurrence of tetany in conjunction with extirpation of the thyroid and with laryngeal inflammation a suggestion that reflex irritation may have a share in leading to the spasmodic symptom. So also it might be thought that in the case of the little patient last quoted the spasms were set up reflexly by irritation of the intestinal nerves, and apart from any absorption of toxic material from the lumen of the intestine. It must be admitted that it is very difficult to distinguish between nervous symptoms set up by a toxæmia and those caused by the peripheral irritation of correlated nerve fibres. There appears to me to be only one point which may help one at the bedside to determine whether the nervous symptoms in any particular case are toxæmic or reflex. It is this: when we produce a reflex act by mildly stimulating the skin, as, for instance, in eliciting the plantar or cremasteric or epigastric reflexes, the first response is always in muscles which lie near to the stimulated cutaneous area. Thus, in the case of the plantar reflex, in health, flexion of the toes is the first muscular action, and only as the stimulus is increasing do other muscles respond. On the other hand, when a toxæmic state is the cause of the muscular symptoms the poisonous material will be equally distributed in the blood stream, and it will act with greatest effect on that part of the nervous system which is most susceptible to the toxic influence, or, what is probably the same thing, that part, for the structural elements of which the poison has the strongest affinity. Hence the seat of the muscular contraction will in this case be determined by the tenderest part of the central nervous system, and we may, as I shall have occasion to show later, have such a phenomenon as unilateral epileptic convulsions arising from gastro-intestinal self-intoxication. From the phenomenon of tetany, as well as from the evidence that the disease is always preceded by conditions liable to produce toxic or infective states of the blood, we should be inclined to say that the spasms are produced by toxic rather than by reflex mechanism. A co existence or the two agencies is not, however, entirely excluded.

4. *Night-terror.*—The next disorder which I wish to discuss is night-terror — nightmare and troubling dreams generally. Children are comparatively rarely brought for advice for these symptoms alone, but their frequency is very great in conjunction with other conditions—notably with disturbances of digestion. Probably the dreams are a good deal more troublesome to the little sufferer than the child can express, for it is only when the fifth or sixth year has been reached that a child will complain of its dreams. In younger infants the evidence of suffering must be derived from screaming, or, in lesser degrees, from restlessness, muttering, and broken sleep. One may say that dreams and nightmare arise from the following causes: (1) primary mental or emotional excitement which prevents the occurrence of that necessary anæmia of the brain in which alone sound sleep is possible; (2) pain, palpitation, visceral uneasiness, etc., producing a consciousness of the physical sensation and thus preventing sound sleep; and (3) blood-states which irritate the

nervous centres. In the first class of cases the patient, generally an adolescent or adult, will recognise what is troubling him. It rarely happens that the sensation is one of mere restlessness without a definable cause for the same. The second group of causes requires no comment; it is, of course, equally liable to operate in children and in adults. The third group of causes prevents sleep by producing a sense of restlessness without pain, and an excited state of the consciousness, in which deep sleep is impossible, and in which confused thought goes on, and any impression made on the half-slumbering senses will render the sufferer partly conscious of the same. Most of us engaged in the practice of medicine are familiar with the phenomenon which may be called "red dreaming." In this condition the sufferer sees the object of his dream coloured a vivid red, and bloodshed forms a common subject of these sleep-hallucinations. It is not infrequently a salient complaint in the tangled complex of symptoms which a so-called "hysterical" woman lays before us. All the instances of this kind with which I have become acquainted have occurred in people whose digestive processes were out of order. It is safe to say that a large number of dreams, more particularly those of an acutely distressing or alarming character, and especially the dreams of children, are due to a toxæmic state; and it is to be noted that, apart from the delirium of fever, these dreams occur frequently in children who are to all appearances fairly healthy or who are, at all events, not suffering from pronounced disease, and who can usually follow the daily round of school-life. If we inquire what kind of digestive disturbances are the most fertile in producing dreams we shall often find that a faulty diet is to blame. Referring, again, for an example to the red dreams just mentioned my own experience shows them to be frequently due to a single excess of meat accompanied perhaps by a simultaneous overloading of the stomach. It may be, therefore, that such dreaming is caused by reflex irritation of the brain-centres or of the nervous apparatus which governs the supply of blood to these centres. On the other hand, it is also possible that the importation of an excessive amount of the digestive products of a meat meal acts as an irritant to the brain-cells directly and without the mediation of the vaso-motor mechanism. However we may choose to explain the connexion we must admit it from clinical observation, for it is proved not only by the frequency of the joint occurrence but also by the effect of treatment which removes the gastro-intestinal cause. It is true that success does not always follow immediately upon correction of the dietary error, and two reasons are accountable for this failure. The first is that, though unsuitable feeding is often the primary cause and is easily put right, yet the faulty diet may have produced a state of intestinal catarrh, and this may in itself be sufficient to perpetuate the nervous symptoms, and will therefore require appropriate treatment. The second reason is that frequent recurrence of the nervous effect may establish a morbid habit in the nerve-cells which is in itself a difficulty even after the primary cause of the disturbance has been successfully removed.

Although, as I have insisted, improper feeding is the most frequent primary cause of children's disturbed sleep and dreaming, yet the same symptom is met with in patients in whom the diet is everything that could be wished. In such cases we shall usually find the presence of gastro-intestinal catarrh, shown by a coated tongue or painful digestion, and it is often the remnant of an attack of measles, whooping-cough, or other infectious disease the acme of which is passed. In other cases the dreaming is the only marked symptom of an unrecognised febrile process, either tailing off from some previous disease, or arising insidiously without marked symptoms, or, though much more rarely, representing the gradual onset of a general disease such as acute rheumatism of the creeping insidious type. It is therefore advisable to take the temperature, at all events in the evening, in patients in whom dietary or digestive faults fail to account for the disturbed sleep. In adults dreaming is frequently set up by a toxæmic condition which arises, not from self-intoxication from the intestine, but from the inefficiency of the kidneys, the result either of actual disease or of the state of renal inadequacy described by Sir Andrew Clark; and in children the same condition will at times be found both in cases where albuminuria and the presence of renal débris reveal structural disease of the kidneys, and in others where these glands are merely enfeebled by the demands to which a previous infective condition has subjected them.

The number of instances in which I have found distressing dreams combined with the signs of digestive toxæmia, to which reference has been made under chorea, is considerable. Yet in laying stress on what I believe to be the most frequent and important cause of nightmare—viz, gastro-intestinal disorder—I would not underrate the importance of primary emotional excitement and of pain, and of unrevealed fever in producing the same effect. In order to treat a child successfully for this distressing condition it will be found necessary to discover fully the cause of the disturbance and to deal with this in the first instance. Further details on the treatment will be included in the review of the therapeutic measures which are applicable to these neuroses generally.

5. *Nocturnal enuresis.*—This condition is, I suppose, still regarded by some as an independent disease and is treated as such. I wish to show in these remarks that that is not really the view which should be taken of this common and annoying symptom. Mothers and fathers are accustomed to regard enuresis as a bad habit—and such undoubtedly it may become—but it is never a habit contracted from either mere wilfulness, or from imitation, or for the sake of producing a pleasurable sensation, and the only habit which can be considered as applying to enuresis is one of easy excitability of the cord-centres which control the muscles of the bladder. Punishment is clearly out of place in the treatment of a habit of this kind. For the first factor of nocturnal enuresis we must, however, look elsewhere, and I think that the primary causes may be fairly stated as follows - (1) disease of the bladder or urinary passages, as, for instance, stone; (2) irritation of the rectum, as from worms; (3) excessive secretion of urine; (4) excessive irritability of the

spinal centres concerned in micturition; or (5) excessively irritating quality of the urine. Although it is convenient to separate the fourth and fifth causes, and although, in fact, each of them may be singly operative in causing nocturnal enuresis, yet these two factors will, as a rule, be found acting conjointly. Excessive irritability of the spinal centres there always must be, to lead to the untimely discharge of urine during sleep, but this probably never occurs (except in gross disease of the spinal cord with which we are not here concerned) without a condition of urine which must be considered as abnormal. If we exclude those cases in which there is an excessive formation of urine and those in which there is actual organic disease of the urinary passages, we shall find that the urine of children suffering from enuresis is generally sharply acid, often, in addition, rich in urates, more rarely depositing uric acid; sometimes an excess of oxalate of lime will be found. Such urines are scanty and concentrated rather than copious, and they indicate an error of the metabolic processes which may depend upon disease or diathesis, or upon faulty diet. In conformity with these points we generally observe that enuresis first comes on either after an illness or after a change of diet, or when, in the absence of definite illness, the child has been in depressed health. The state of the urine is in fact, the index of a disordered metabolism. How the disorder comes about is shown to us by the forerunners of the enuresis, though it must be admitted that the history is often difficult to obtain. We may safely assert that the disturbance of the assimilative and disassimilative processes is never primary, but that it is invariably the result of an altered state of the blood, which in turn has its cause in the presence of toxic substances, the proceeds of microbial action or the derivatives of a faulty diet. In a few instances nocturnal enuresis results from the direct excretion of pathogenic bacteria by way of the urine. Charged with considerable quantities of living bacteria and their derivatives, the urine naturally has an action upon the walls of the bladder irritating beyond the normal, and the result is that during the time when voluntary control is smallest the spinal centres are apt to respond vigorously to the extraordinary irritation. I have lately seen a case in which this occurred.

Case 6.—After a prolonged pneumonia the urine of a little boy contained large quantities of bacteria, and simultaneously he had great frequency of micturition with loss of control over the bladder. This led to an enuresis which was certainly not limited to the night, but which continued night and day; but it was merely an exaggeration of nocturnal enuresis.

The same tendency to frequent micturition may be discerned in a minor degree in a good many adults after the termination of pneumonia or other bacterial disease such as enteric fever. There can, however, be no doubt that the majority of instances of nocturnal enuresis are associated with no very noticeable disturbance of the general health, and hence the enuresis is made the chief complaint, and, I repeat, where no recent illness can be traced there we shall nearly always find error of diet or disease of the digestive tract. Unsuitable diet plays so important a rôle that to illustrate it I will mention a case which has recently come before me.

Case 7.—A little girl, aged three years, suffered from nocturnal enuresis together with frequent micturition during the day. The urine was said to be not excessive in quantity; it had a high colour and density and a strong smell, somewhat resembling that of meat extract. There was a little inflammation about the external genitals. The child's sleep was broken, she was nervous, and she had a trick of pulling faces, the movements coming sometimes near to those of chorea. Beyond this her appearance was that of health. She suffered, however, from itching and showed isolated spots of urticarial erythema. All these symptoms had come on from the time when she was first given meat; up to nearly her third year she had never tasted this article of food and had enjoyed excellent health. Withdrawal of meat from her dietary was immediately followed by moderation, though not by complete cessation, of the symptoms; but a fortnight after the beginning of this treatment a single meat meal, which by the way consisted of rabbit, was followed by enuresis in the same night.

ON EPISTAXIS.

BY WILLIAM LAMB, M.D. ED., M.R.C.P. LOND.

PROBABLY few things are more worrying to a practitioner than a bad case of epistaxis. The reason of this is not far to seek. The bleeding comes from an extremely vascular cavity, which is dark, full of recesses, difficult of illumination, and freely open at both ends, so that it is much more difficult to deal with than a *cul-de-sac.* A knowledge of nasal topography, and some familiarity with the use of the forehead mirror are very important in the management of epistaxis, but such knowledge cannot be satisfactorily treated of in papers; it is only to be acquired by practice. As an acquaintance with the main facts regarding the vascular supply of the nasal cavity is necessary to an intelligent view of the subject, a brief *résumé* will be given here.

The chief artery of the nose is the spheno-palatine branch of the internal maxillary. Entering the nasal cavity at the upper and back part of the outer wall close to the posterior end of the middle turbinal, it divides at once into two branches. Of these one—the naso-palatine artery—supplies the upper part of the olfactory tract and the septum. Starting from the body of the sphenoid its branches run forwards and downwards anastomosing above with the ethmoidal arteries, and below and in front with the anterior artery of the septum, close to the entrance of the nose.

The other branch—the posterior nasal artery—splits up into vessels which run forward in more or less parallel lines along the outer wall of the nose, supplying the middle and inferior turbinals and corresponding meatūs. The arrangement is pretty constant. A large artery runs along the lower border of the middle turbinal; a smallish one descends to the lower meatus, and the main trunk of the vessel passes to the posterior end of the lower turbinated body, which is richly supplied by the three terminal branches;—a large one coursing along the centre of its convexity, a smaller one following its lower border, and a third supplying its upper part and the adjoining regions of the middle meatus. The arteries lie close to the bone, and at parts are contained in grooves which furrow the spongy bones. There is free anastomosis between all the branches, and also with the ethmoidal arteries which run down from the roof of the nose. Thus the larger arterial trunks of the nasal cavity lie at its posterior and upper part.

The veins may be divided into three principal groups:—First, those which run forward to the entrance of the nose and join the veins of the face. Second, those which run upwards to join the ethmoidal veins, and so reach the veins of the dura mater and the longitudinal sinus. The most important vein in this group is one very constant vessel, first described by Zuckerkandl,* which accompanies one of the branches of the anterior ethmoidal artery and passes through a foramen in the cribriform plate (not the foramen cæcum) to join the veins of the olfactory plexus or frontal lobe.

The third or posterior group of veins is divided into a superficial set, which join the veins of the palate and pharynx, and a deep set which accompany the branches of the posterior nasal artery, and pass with it through the spheno-palatine foramen into the spheno-maxillary fossa.

The superficial veins of the posterior group may sometimes be seen in the Eustachian region of the naso-pharynx lying close to the surface of the mucous membrane, like the dilated veins so often seen on the base of the tongue. When varicose they would be easily injured by the incautious use of instruments, as in the operation for adenoids when the lateral wall is involved.

Before leaving the subject of vascular supply, a word may be said as to the erectile tissue. It resembles in general structure the corpora cavernosa, and is situated chiefly on the lower turbinated body, but it is also present, though to a less extent, on the lower border of the middle turbinal and on the posterior ends of the middle and superior turbinals. It is powerfully

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* Zuckerkandl. Anatomie d. Nasenhöhle. Second Edition. Vol. i., p. 135.

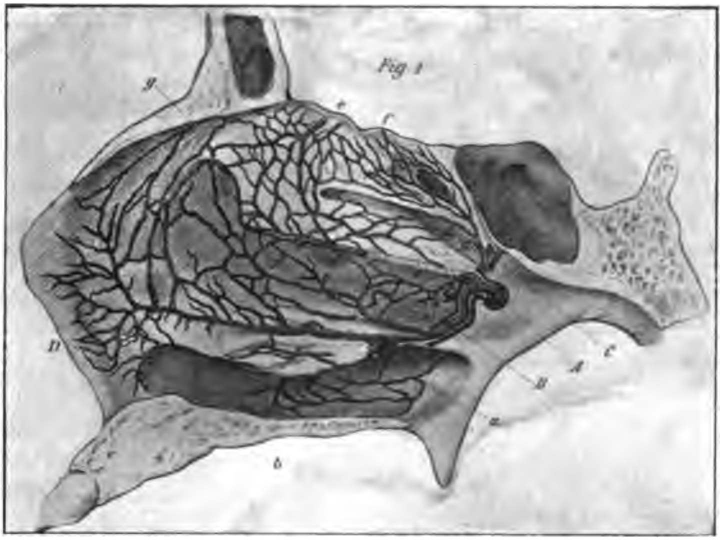

FIG. I.

The lateral wall of the right Nasal Cavity, showing the arteries. (After Zuckerkandl).

A. Posterior nasal artery. *c*, *c*. Branch to the middle turbinal. *a*. and *b*. Branches to the lower meatus.

B. Main trunk dividing at the posterior end of the lower turbinal into three branches, for the supply of that body and the adjoining parts of the middle meatus.

C. Naso-palatine artery, giving off branches *d*. *d*. to the superior turbinals.

e. and *g*. Branches of the anterior ethmoidal artery. *f*. Anastomosis with posterior ethmoidal artery. The venæ comites of the posterior nasal artery are shown passing through the spheno-palatine foramen with that vessel.

controlled by the nervous system, and its condition is much influenced by emotions, such as fear, anger, nervousness.

Ætiology.—The causes of epistaxis are too numerous for detailed mention, but they may be classified in groups as follows:—

1. General diseases with a tendency to hæmorrhage, *e.g.*, Hæmophilia, Purpura, Scurvy, Leukemia, Chlorosis, etc.

2. Conditions of increased blood pressure. The increased pressure may be either general, as from Plethora, Atheroma, Bright's disease, over exertion, excitement, etc., or it may be partial, and of the nature of venous congestion, as in the various conditions in which the right heart is over-distended, in obstruction of the cervical veins from pressure of a goitre or other tumour, a tight collar, etc.

3 It may be due to local causes in the nose or naso-pharynx. Of such causes by far the most frequent is erosion of the mucous membrane of the septum at its lower and anterior part—often about half an inch from the entrance to the nostril.

Hartmann* was the first to maintain that the great majority of cases of so-called "spontaneous" epistaxis were due to this cause. He quoted observations by Michel, Little, and himself, and his conclusion has since been abundantly confirmed by many observers. According to Chiari† about 90 per cent. of all cases come under this heading. The bleeding is generally venous, sometimes the vessel can be seen to be distinctly varicose. Ingenious reasons have been given by various authors to explain why this particular part of the septum should be the seat of election for epistaxis. By some the mucosa at this spot was said to be unusually thin, tightly stretched over the cartilage and closely adherent to it, so that the vessels could not retract. By others the part was said to be specially vascular, the venous return to be impeded, etc., ; but all these explanations were disposed of by Zuckerkandl, who found on carefully examining the part, that the alleged anatomical conditions did not exist.* Zuckerkandl's own explanation is that the bleeding spot on the septum is the spot most exposed to injury by the finger nail when it is used to pick off the little adherent crusts which form in the dry varieties of rhinitis. This explanation has been very generally accepted. Just below the bleeding spot there is generally a projecting ridge which marks the junction of the vomer with the cartilage of the septum. As secretion flows down the septum, it tends to stagnate above this ridge and dry into a crust which adheres to the mucosa. The dry adherent crust causes slight irritation, to relieve which it is picked off. In doing this an erosion may be produced. The erosion may bleed and heal again, or under the influence of repeated irritation it may ulcerate and go on to perforation of the septum. Other nasal diseases attended with crust formation, such as ozæna and empyema, are also liable to give rise to epistaxis from detachmen of crusts, but the bleeding is rarely considerable.

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* Zeitschrift f. Ohren heilkunde, Bd. 10. 1881.

† Chiari, Erfahrungen a. d. Geb. d. Hals-und Nasenkraukh. 1887.

The lower turbinated body and the floor of the nose are said to come next in frequency to the septum as sites for hæmorrhage. This is perhaps doubtful, but in any case they are rare as compared with the other. All three situations it will be observed are in the lower part of the cavity, and generally towards the front.

Bleeding from the upper and anterior regions of the nose is not very uncommon, and occurs in a fairly well-marked group of cases, those, namely, which are associated with plethora, or congestive head symptoms. The blood is seen flowing down the septum from the olfactory fissure, and its source is no doubt the ethmoidal veins, and especially the important vein described by Zuckerkandl as running through the cribriform plate to join the olfactory plexus or the veins of the frontal lobe. Every experienced practitioner will be able to recall cases of this kind—of cerebral epistaxis as it might be called—in which the bleeding relieved threatening head symptoms. The writer can recall very distinctly three patients who were subjet to repeated nose-bleeding and who eventually died from cerebral hæmorrhage. Dr. Brown Kelly,* of Glasgow, has recently drawn attention to this group of cases.

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* Zuckerkandl. Op. cit., Vol. ii.. p. 59 and 60

Ulceration in the nose may give rise to epistaxis. The ulceration may be simple (*i. e.*, traumatic) as in the case of the perforating ulcer of the anterior part of the septum, or it may arise in connection with tubercle, caries, malignant disease, syphilis, or diphtheria. In the case of tubercle the bleeding comes from exuberant granulations and is easily checked, but in carious processes there is occasionally really formidable hæmorrhage from the erosion of a considerable vessel such as the posterior nasal artery or one of its branches at the upper and posterior part of the nasal cavity. Such cases are no doubt rare but several have been recorded,† and probably many occur for every one that is put on record. Free bleeding might be expected to occur from this region after the use of the spokeshave with which the main artery to the inferior turbinal is divided close to its origin, but the writer is informed by those who use that instrument freely, that, as a matter of fact, the hæmorrhage is rarely excessive and is easily controlled; probably because the artery is cleanly divided and is at liberty to retract, whereas when eroded by ulceration it cannot retract.

Malignant ulceration is not likely to be mistaken for anything else. The growth generally involves the antrum and outer wall, more rarely the naso-pharynx. The exuberant granulation masses of tubercle which might conceivably give rise to doubt are most frequent on the cartilaginous septum and give rise to no severe general symptoms.

Another local cause of epistaxis is the so-called bleeding polypus of the septum. This rather rare growth is an angioma, and is generally situated close to the entrance of the nose.

Fibroid polypus of the naso-pharynx must also be mentioned.

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* Journal of Laryngology. March, 1900.

† Grimwald's Nasal Suppuration, pp. 85 and 86.

This is not a common affection, but recurrent epistaxis is a frequent symptom of it, the bleeding taking place from dilated veins in the mucous membrane covering the tumour. Two months ago a healthy young man was sent to the writer as a supposed case of this affection. His complaint was of continual spitting of blood which he was obliged "to draw back out of the nose" as he expressed it. There was no polypus however, the blood came from the posterior ends of the lower turbinals which were considerably hypertrophied and highly vascular.

Traumatic epistaxis really includes a great majority of the cases one ordinarily sees, the injury consisting in erosion of the mucous membrane of the septum, but in addition there are of course the familiar cases due to blows upon the nose, fractures of the base, etc. Hæmorrhage from such injuries may be profuse, but as a rule it soon stops.

Finally, epistaxis may be a vicarious hæmorrhage, replacing a menstrual period. This question has long been debated; the writer's teacher in gynæcology, Dr. Matthews Duncan, was more than sceptical on the subject, but the fact seems now to be established.

Symptoms.—The milder cases of epistaxis give rise to no general symptoms, and those resulting from the more serious cases may be summed up in the single word, anæmia. The anæmia may be acute, from a single profuse hæmorrhage, or, much more frequently, chronic, from repeated smaller losses. It is important to determine which is the primary factor, that is to say, whether the anæmia is the consequence of the epistaxis, or the cause of it. If the former, efficient treatment of the epistaxis will probably cure the patient; if the latter, the primary cause will demand at least an equal share of attention.

The *diagnosis* of epistaxis consists in defining the cause of the hæmorrhage and in locating its source. Only the second part of the problem comes within the scope of this paper.

If the case be seen during an interval it is not always possible to say where the blood comes from, although a careful inspection will often reveal an erosion, or an ulcer, a varicose vessel, or an adherent clot; and careful palpation of the mucous membrane with the probe, or gently drying a suspicious spot with a brush of wadding may cause the bleeding to burst out in typical fashion—a fortunate circumstance, enabling one to radically cure the hæmorrhage by destroying the vulnerable area with the galvano-cautery.

If the patient be seen during an attack a precise diagnosis may be quite easy, or extremely difficult of attainment, according to the site and rapidity of the hæmorrhage, and the facilities available for examination.

In any case a systematic plan of procedure is desirable, and the following is perhaps as good as any:—Having directed the patient to compress the unaffected nostril and blow out all clots from the other, a Thudichum's speculum is introduced, and a good light reflected into the cavity from the forehead mirror. As a rule the whole of the interior seems to be covered with blood, which, if watched, accumulates more or less rapidly in the lower meatus. A mop of absorbant wool is taken, either with the nasal forceps, or wound loosely round a Stewart's probe, and pressed against the lower and anterior part of the septum, retained there a few seconds to absorb the blood, then quickly withdrawn, leaving the mucous membrane momentarily dry, and revealing any bleeding spot that may exist upon its surface. Sometimes the bleeding spot lies so far forward that it is covered and concealed by the blade of the speculum, as when it is situated in the anterior recess behind the tip of the nose. This recess is best examined with a small mirror similar to the post-nasal one. If nothing be found on the septum, the floor of the nose and adjacent parts of the lower turbinal may be examined in the same way, and after that, if necessary, the outer wall, which is best taken from above downwards. Thus if the middle meatus be mopped dry and remain so, it is obvious that the source of the bleeding need not be sought higher up, and that the examiner may direct his scrutiny to the lower turbinated body and the inferior meatus. In hæmorrhage from the olfactory fissure (ethmoidal veins) the blood flows chiefly, but by no means exclusively, down the septum; a fair amount generally finds its way to the outer wall, as is the case also with pus in the same situation.

Under favourable circumstances it will generally be possible to locate the source of the bleeding at least approximately, for example, to the anterior or posterior part of one or other meatus, the septum, floor of the nose, upper and anterior or upper and posterior part of the cavity, etc., and even an imperfect diagnosis of this kind is a great help to treatment.

Treatment.—The first point to decide is whether any treatment is called for. Cases in which the epistaxis has relieved head symptoms—cerebral epistaxis—should not be hastily interfered with, but allowed to bleed moderately. The hot mustard foot-bath and mustard plasters to the calves, may be employed as tending to increase the blood supply of the lower parts of the body, and at the same time cause reflex contraction of distant vessels. A purge too is often indicated, and of all purgatives, calomel at night followed by a saline purge next morning, is the most efficient, in lowering vascular tension and removing toxic products. If the bleeding should prove excessive, however, it may become necessary to check it, and if simple expedients, such as holding the arms above the head, do not suffice, this may be done by packing a narrow strip of iodoform gauze in between the middle turbinated body and the septum—plugging the olfactory fissure in fact, and so compressing the ethmoidal veins. The plug may be removed in twenty-four hours and renewed if necessary. If the blood should not be found running down the septum from the olfactory fissure, its source must be sought elsewhere, and the plug applied directly to the bleeding spot. That is, of course, the rational treatment of all cases of excessive epistaxis; compress the bleeding spot with your plug, but do not fill the whole nostril with a mass of lint or gauze, which is quite unnecessary and most uncomfortable. Theoretically the principle is correct beyond question, but there are sometimes serious difficulties in the practical application of it. For instance, when the bleeding is rapid it may be a matter of great difficulty even for an expert to locate the precise source. Much will depend upon good illumination of the cavity, and upon the quickness of the operator in mopping, and dexterously removing his mop, so as to leave the surface open to inspection while still tolerably dry. Sometimes the simplest plan is to assume in the first place that the hæmorrhage comes from the usual bleeding spot on the septum. If so, it lies so near the entrance that if a pad of lint or wadding be introduced and the nostril compressed, hæmorrhage will be effectually checked for as long as the pressure is kept up. Should this manœuvre not succeed, the source of the bleeding must be sought elsewhere in the manner already described, and for this a speculum, a reflector, and a fairly good light will be found essential. For partial plugging, iodoform gauze answers very well; its thinness renders it suitable for packing into narrow fissures or small cavities, but if it become necessary to use a larger plug, boracic lint torn into narrow strips has certain advantages—notably absence of smell and taste. A plug of from 1½ to 1¾ inches in length will practically fill the lower meatus, and compress the whole length of the inferior turbinated body. It may be applied in either of the two following ways. Narrow strips of boracic lint (½ to ¾ inch wide) are torn of double the requisite length, laid one on the top of the other and tied together in the middle with a stout thread. The bunch of strips is then folded on itself and the doubled end is passed backwards between the lower turbinal and the septum till the cut ends of the strips are level with the anterior nares. The doubled end of the bunch will then be level with the choanæ. Narrow nasal forceps or a stout probe may be used to introduce the plug. The size of the plug required may be guessed by inspection of the nostril, and it is well to remember that very moderate pressure will suffice if properly applied. The other and more popular method of plugging is to take a long strip of gauze or lint, double it at the end for an inch or so, pass the doubled portion to the back of the nostril (about two inches) with probe or forceps, and then pack in as much of the strip as may be required. Sometimes a thread is tied to the doubled end of the strip, and by pulling upon this thread the plug is consolidated.

This is the most severe measure of plugging which is almost ever required; plugging the posterior nares with Bellocq's sound (generally made too thick) is an operation which should be reserved for cases of bleeding from the naso-pharynx, or from the posterior and upper parts of the nasal cavity. But the use of the plug, even when applied in the most approved fashion, directly to the bleeding spot, cannot be regarded as a cure for the majority of cases, especially those due to erosion of the septal mucosa. To cure them it is necessary to destroy the bleeding area and replace it with cicatricial tissue. This may be done with the galvano-cautery at a very dull red heat, or by means of chemical caustics, such as chromic or tri-chlor-acetic acid. A darning needle stuck in a cork for a handle, and heated in the flame of a spirit lamp has, upon occasion, served the writer instead of a galvano-cautery. Whichever method be adopted the part should be cocainised. Another chemical caustic which the writer has used to check bleeding from the nose is common precipitated sulphur, applied with a brush of absorbent cotton-wool or upon lint or gauze. Mr. Arbuthnot Lane* first drew attention to the uses of sulphur in surgery. He pointed out that when applied to a raw surface the sulphur combines with the hydrogen of the tissues forming H_2S, and also with oxygen forming SO_2, which is further oxidised to SO_3 and $SO_3 + H_2O = H_2SO_4$. The latter exerts a strong caustic action which is very marked in fresh wounds, but comparatively slight on granulating surfaces. A yellowish-white membrane is formed and the wound is kept aseptic. The action is perfectly painless, and the sulphur has no action on unbroken mucous membrane—two considerable advantages, as no special care is required to limit the application. Hot water (110°) is a useful hæmostatic in the nose as elsewhere; it may be injected with a syringe, or applied with a swab of wadding. Peroxide of Hydrogen is also serviceable, applied on a swab and left in position for ten to fifteen minutes.

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* Medico-Chirurgical Soc. Trans., Vol. 78.

Whitla recommends puff-ball applied freely. In hæmorrhagic diseases when the whole mucosa is spongy and bleeds at a touch, it is conceivable that such an application might be very useful, and it is at least un-irritating.

Extract of supra-renal capsule will probably be found useful; the writer has had favourable experience of its use in lessening bleeding during nasal operations.

General treatment will, of course, vary according to the causal indications. Chloride of Calcium should be given in Hæmophilia and Turpentine in Purpura. In cardiac cases and in alcoholic patients with dilated arterioles digitalis will be found invaluable. Small doses of digitalis with full doses of bromides are useful in plethoric and congestive cases.

A CASE OF MIRROR WRITING.

BY JAS. W. RUSSELL, M.A., M.D. (CANTAB.), M.R.C.P.
ASSISTANT PHYSICIAN TO THE BIRMINGHAM GENERAL HOSPITAL.

Mrs. E. W , aged 36, was admitted into the Birmingham General Hospital, on November 21st, 1899, suffering from right-sided hemiplegia and aphasia of five days' duration. Her family history contained no point of importance, except that her father had suffered from "rheumatism." She had herself been free from positive illness, though never strong and often in poor health. She had undergone considerable mental anxiety during the last few years and frequently suffered from headache. There was no history of rheumatism or syphilis.

On the morning of November 18th, 1899, she found on waking that she could not move either the arm or leg on the right side. She tried to call for help, but was unable to speak. On the fifth day after the onset of the paralysis she came up to the Hospital and was admitted. I did not myself see her at this time, and am therefore dependent on the notes of the case for the following account of her condition on admission, When first seen there was complete flaccid paralysis of the right arm and hand. The muscles of the right leg showed very slight rigidity: there was slight power of adduction and abduction, and also of flexion and extension. Slight facial paralysis existed on the right side. The plantar reflex was present on both sides, but on the right was of the extensor type. The abdominal and epigastric reflexes were normal, but perhaps slightly more brisk on the left than on the right side. Both knee-jerk and elbow-jerk were exaggerated on the right side, and there was right ankle clonus. As far as could be ascertained, there was no affection of sensation on either side of the body. The sphincters acted normally.

The affection of speech appeared to consist of a pure "motor" aphasia. Two words only, "yes" and "no," were available, and these were used entirely regardless of sense. The patient was able to understand all that was said to her, and could read without difficulty. Writing was not at that time tested.

There was no evidence of any cardiac disease, and the radial arteries were apparently healthy.

During her stay in the hospital the paralysis gradually diminished, and speech quickly improved, becoming fairly normal in the course of a few weeks. It is worth noting, however, that she had an attack of apparently hysterical retention of urine, which yielded to electrical treatment.

On January 19th, 1900, she was transferred to the Jaffray Hospital, where she came for the first time under my own observation. She was then able to walk without assistance, although the right leg was slightly spastic. The right arm remained almost completely paralysed. A little facial paralysis could still be detected on the right side. When talking, her speech was somewhat slow and drawling in character, but I never noticed any hesitation due to difficulty in remembering words. Nevertheless, she declared that some difficulty was still felt on occasions. She understood everything that was said to her without delay, and could read both printed and written characters.

Writing with the right hand was quite impossible owing to the paralysis. On being told to write her Christian name with the left hand, she slowly but without much hesitation wrote as below, beginning at the right hand side of the paper and proceeding from right to left. The second time of making the attempt, the first letter, "E," was written the right way round, but the rest of the name was again traced from right to left.

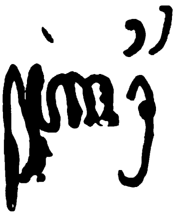

Fig. 1.

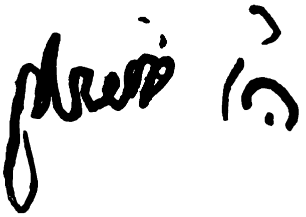

Fig. 2.

She then tried to write her surname, Webster, but soon got into difficulty and gave up the attempt. As far as she went, however, the same reversal was noted.

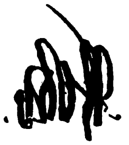

Fig. 3.

When asked if there was anything unusual about what she had written she failed to detect the peculiarity, and, though otherwise perfectly intelligent, seemed to be satisfied that the only fault lay in the imperfect execution of the left hand. When it was pointed out to her, however, that she had written her name backwards, she at once (as shown in Fig. 4) corrected the error, and from that time onwards always wrote in the ordinary fashion.

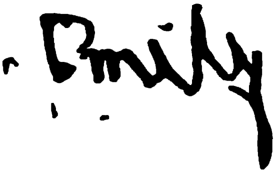

Fig. 4.

Although very clumsily executed, it will be seen on holding them before a looking-glass that the above specimens are examples of mirror writing. The performance is, however, very faulty and confused, although from the literature of the subject it appears that the characters written by mirror writers are generally fairly good, and indeed that there is a very marked resemblance between the writing of the two hands, the peculiarities of the ordinary hand writing being reproduced in the backward copy with considerable accuracy. This fact is held to support the theory that the act of writing with the left hand is guided by the left, or usual cortical writing centre, acting through commissural fibres upon the so-called motor centres of the left hand and arm.

An excellent illustration of this similarity of character in the two writings is given by Dr. F. J. Allen in *Brain* for 1896. Dr. Allen there records the fact that mirror writing with the left hand is natural in his own case, and the specimens of right and left hand writing given in his paper show a complete similarity when the two are compared with the aid of a looking-glass. In the present case no such comparison can be made owing to the paralysis of the right hand.

The phenomenon of mirror writing has attracted some attention of late, both in cases of aphasia and in the normal individual. It was formerly supposed that it was essentially a peculiarity of the writing of persons afflicted with one or other form of aphasia; but this probably arose from the fact that writing with the left hand is but seldom attempted except in cases of right-sided paralysis. An examination of the left-hand writing of normal individuals, recorded by Dr. Elder in his book on "Aphasia and the Cerebral Speech Mechanism," seems to show that the peculiarity is at any rate by no means confined to this class of patients. Dr. Elder investigated the left-handwriting of 451 normal persons, and found that no less than 5·1 per cent. wrote backwards, that is from right to left: 337 of those experimented upon were females, and of these 19, or 5·6 per cent., were mirror writers; 114 were males, of whom only 4, or 3·5 per cent., exhibited the peculiarity. It was further noticed that mirror writing was much more common in individuals over 15 years of age than in those who were under this age. This fact Dr. Elder explains by the greater degree in which the aid of vision is employed to assist the process of writing in young subjects, for it is clear that the more the process is guided by the sense of sight, the more likelihood is there that any tendency to abnormality in writing will be at once perceived and corrected. In adults, on the other hand, in whom the act of writing has become more or less automatic, superintendence by sight plays a much smaller part. Moreover, when occurring in children under 15 years of age, mirror writing was found to be most common in those who were far advanced in intelligence and the power of writing.

It thus appears that mirror writing is not necessarily a morbid phenomenon, and indeed, as Dr. Elder points out, it is not unnatural that the cortical writing centre should tend to put into action the homologous muscles of the two sides, a process which would necessarily result in backward writing with the left hand. At the same time, the frequency with which the occurrence of mirror writing has been noted in cases of aphasia suggests that there may possibly be some special connection between the two conditions.

A case recently brought before the *Académie de Médecine* of Paris, by Dr. Marinesco, would seem to point to some nervous abnormality. The patient was a neurasthenic man who complained of tremor of the hands, and whose left-hand-writing presented the characters of mirror writing, even when copying or writing from dictation Letters traced with the left foot also showed the same peculiarity. The patient being a Jew, and acquainted with the Hebrew language—which is normally written from right to left—he was asked to write a few words in this language with the left hand. This he did without reversal. When asked to write the same characters from left to right, however, mirror writing was again performed. A drawing was copied correctly and without abnormality. When asked why he wrote with the left hand and mirror-wise, he explained that he felt compelled to do so as by an irresistible tendency, and that he actually saw in his own mind the image of the letters in that arrangement. Dr. Marinesco states that he has found mirror writing in other cases of right hemiplegia, with or without aphasia, in two cases of writer's cramp, and more rarely in normal individuals, but he has never come accross any case in which the same strong tendency was felt to exist. In his opinion the peculiarity was due to some disturbance of the mental vision involving a deviation in the direction of the movements necessary for writing.

With regard to the situation of the lesion in the case now under discussion, the affection of speech, as far as can be judged from the condition observed by myself, would appear to suggest that the fibres connecting Broca's convolution with the lower centres were damaged, rather than the speech centre itself. Thus, when seen at the Jaffray Hospital, the difficulty, or what remained of it, was certainly one of articulation only, and there was no trace of any hesitation in the central processes involved. It is true that considerable time had elapsed since the onset of the attack, but the rapid recovery of speech which took place in the General Hospital supports the view that there was only temporary embarrassment without actual lesion of the motor speech centre. If this be true the paralysis was in all probability due to a hæmorrhage in the internal capsule. There is no ground on which to form an idea as to the cause of the attack. The occurrence of retention of urine might in itself support the diagnosis of hysterial paralysis, but the permanent paralysis of the arm, the exaggeration of the reflexes with ankle clonus on the affected side, and above all the existence of the Babinski extensor toe reflex is proof of the organic nature of the lesion.

MEDICAL ABSTRACTS.

SOME ANOMALOUS CASES OF APHASIA.

BY JAMES W. RUSSELL, M.D.

A Remarkable Case of Aphasia. By Byrom Bramwell, M.D., F R.C.P. Edin. (*Brain*, Autumn, 1898).

A Contribution to the Study of Aphasia. By James S. Collier, M.D. B.Sc., M.R.C.P. Lond. (*Lancet*, March 25th, 1899).

On "Crossed" Aphasia. By Byrom Bramwell, M.D., F.R.C.P., Edin., F.R.S. Edin. (*Lancet*, June 3rd, 1899).

On the Localisation of Intracranial Tumours. By Byrom Bramwell, M.D. (*Brain*, Spring, 1899).

The following are brief outlines of two remarkable cases recorded by Drs. Byrom Bramwell and Collier, in which complete destruction of Broca's convolution led, in the one case to a mere loss of the power of naming things and persons, and in the other to no recognisable defect of speech of any description.

(1) A man, aged 70, with good family history, but who had suffered a few years previously from symptoms of angina pectoris, was noticed on coming home from his work one afternoon to be either unable or unwilling to speak. His condition improved during the evening, and, though he spoke but little, he expressed himself correctly. The next morning he was better, and it was not till the afternoon that he was induced

to see a doctor. He was then able to talk without difficulty, except on attempting to name either persons or things, when his power of speech entirely failed. There was considerable impairment of writing. He was seen by Dr. Byrom Bramwell three days later. He then spoke freely, but was unable to tell his own name, and in reply to the question, "What is your wife's name?" answered "Sugar and spice," four times over. When shown various objects he called a key "a lock," but made no attempt to name anything else. He was able to repeat his name and those of objects when previously told them. He read aloud fairly well, though some words were entirely altered; for instance, the word "commercial" was pronounced "farewell," &c. On being asked to write his name he did so fairly well, but continued to write his own name for his wife's and that of his doctor. Sometimes there was a curious paragraphia; thus, when told to write the letter "o," he wrote "o," but followed it with two words which looked like "of zinc." Again, "Dear Sir" was written "Dear "Surgises," and "one hundred" as "one forager." There was not the slightest word deafness. The patient was right-handed and had always been so, and no member of his family had ever been left-handed. A slow improvement in some of the symptoms took place during the next six weeks, when he died from gangrene of the intestine, due to blocking of the mesenteric artery. *Post mortem*, there was extensive softening of the whole of Broca's convolution; the left ascending frontal convolution was unaffected.

(2) In Dr. Collier's case the patient was a woman, aged 23, who in May, 1896, suddenly lost consciousness whilst out walking. She fell down, but there were no convulsions. Two similar fits occurred in the next fortnight, and in the last there were slight convulsions. From this time she was subject to recurring attacks of giddiness, pallor and faintness, but without affection of speech. In October, 1898, she was noticed to be a little dull mentally and complained of slight headache, and on November 8th she mumbled and used wrong words for a period

of half an hour. On November 13th she became heavy and somnolent, and was admitted into the National Hospital for the Paralysed and Epileptic, where she died seven days later. During this time she remained in a semi-comatose condition, except when roused, but then spoke correctly and without difficulty. There was no word-blindness and no aphasia. Optic neuritis was present, and the right external rectus was completely, the left partially, paralysed. ***Post mortem***, a growth was found involving and destroying the inferior margin of the left second frontal convolution at about its middle, the whole of the posterior part of the left third frontal convolution, the posterior part of the orbital lobule, and to a small extent the anterior gyrus of the Island of Reil. The growth crossed the posterior limb of the fissure of Sylvius about one centimetre from its commencement, and involved the anterior part of the first left temporo-sphenoidal convolution. The ascending frontal was not involved, and the right side of the brain was healthy. The patient was right-handed and so were all the members of her family of whom information could be obtained. Moreover, there was nothing either in the history or in the ***post mortem*** appearances to suggest that any previous lesion of the left motor speech centre had led to the education of its counterpart on the opposite side.

Both writers comment on the remarkable fact that complete destruction of Broca's convolution in a right-handed patient should occur either without any aphasia or with but a temporary inability to name things and persons together with some paragraphia and word blindness. Dr. Bramwell explains the phenomenon by the assumption that there is always a certain degree of education of the right third frontal convolution in the processes of speech, which in a few individuals reaches such a pitch that this centre is able at once to carry on the function of speech when the centre on the left side is incapacitated from growth or other lesion. Dr. Collier, on the other hand, considers that this theory of the almost co-equal education of the two centres is unwarranted, and that such cases as those described merely show the possibility of the "fortuitous major activity of the glossc-kinæsthetic centre in the right third frontal convolution in a right-handed person," or, in other words, that right-handedness does not necessarily involve the major activity of the third left frontal in the processes of speech. In keeping with this is the fact that left-handedness does not always involve the transfer of the motor speech centre to the right side of the brain, as is shown by a case recorded by Dr. Dickinson* in which a man was seized with right hemiplegia and aphasia, but was able to write with his left hand with great ease and fluency, having been left-handed or rather ambidextrous all his life.

To the condition of right hemiplegia with motor aphasia occurring in a left handed individual, illustrated by Dr. Dickinson's case just quoted, Dr. Byrom Bramwell applies the term "Crossed Aphasia," and he enters into a lengthy discussion of its causation in his later paper. The condition is a rare one and forms, as already stated, an exception to the almost invariable rule that in a left-handed person the speech centres are situated on the right side of the brain, and aphasia is therefore associated with left hemiplegia. In most cases of "crossed aphasia" the speech symptoms are transitory only, and may be compared with the temporary aphasia which is often met with in cases of left hemiplegia occurring in right-handed individuals. In both cases this temporary aphasia, associated with paralysis of the same side of the body as that on which the speech centres are situated, may probably be explained by the assumption that although the function of speech is in the main performed by the centres on one side only of the brain, yet those on the opposite side probably take a small share in the process which differs in its extent in different individuals. This share may thus be of sufficient importance to cause some little temporary interference with speech when suddenly put out of action.

The explanation does not, however, hold good in the unusual instances in which a left-handed person attacked with right hemiplegia is affected with permanent or long-standing aphasia, and hence Dr. Bramwell suggests that, although in left-handed persons the main speech centres tend naturally to lie on the right side of the brain, yet in a few individuals this tendency is counteracted by the enforced use of the right hand in the process of writing. The writer maintains that the factors which determine the right or left-handedness of the individual, and hence the side on which the main speech centres shall be educated, are two, namely, (1) heredity, and (2) congenital aptitude and personal acquirement. The latter, or inherent tendency of the individual, is probably in most cases the stronger, and therefore, in spite of right-handed inheritance, people with strong left-handed personal tendencies develope the centres on the right side of the brain. Such people, if seized with right hemiplegia, will, as already explained, have at most a slight temporary motor aphasia, due to embarrasment of the subsidiary centres on the left side. But, Dr. Bramwell suggests, there may be some in whom the contest between right-handed inheritance and left-handed natural tendency may be so even that the question as to which side of the brain shall be principally used in the processes of speech remains undecided until the time when the child begins to learn to write, and the use of the right hand in the latter operation determines the principal education of the speech centres on the left side of the brain. In these cases, therefore, a right hemiplegia will be accompanied by more or less persistent motor aphasia although the patient is left-handed. It is worth noting, in connection with this suggestion, however, that in Dr. Dickinson's case of right hemiplegia with motor aphasia in a left-handed man, the left hand was also used with ease for the purpose of writing, and Dr. Bramwell's explanation thus hardly accounts for the phenomenon in this case.

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* Quoted in Bastian's "Aphasia and other Speech Defects."

Dr. Bramwell concludes his paper by pointing out that the same explanation need not necessarily apply to his own and Dr. Collier's cases of destruction of Broca's convolution without the production of aphasia, seeing that in one the lesion was of sudden, in the other of gradual occurrence. He thinks that in Dr. Collier's case a gradual education of the right speech centres may have occurred simultaneously with the slow impairment of those of the opposite side. Such a suggestion, however, appears to us to be contradicted by the well-known failure of education of the right speech centres in cases of ordinary aphasia unless occurring in quite young patients.

In a series of cases illustrating the localisation of intracranial tumours, published in *Brain*, Spring, 1899, Dr. Byrom Bramwell includes certain instances of the manner in which the *post mortem* findings not infrequently fail to correspond to the speech symptoms noticed during life. The following is a brief record of these cases :—

(1) Two sarcomatous tumours of the left frontal lobe. One was situated in the tip of the lobe, but the other was limited to and had produced complete destruction of the posterior end of the second left frontal convolution. There was neither aphasia nor agraphia during life. This case is particularly interesting on account of the localisation by Exner of the writing centre in the posterior third of the second left frontal convolution.

(2) Large glioma and cyst in the left hemisphere, causing complete destruction of the greater part of the left ascending frontal and ascending parietal convolutions and the subjacent white matter, the posterior end of the third left frontal and the greater part of the white matter of the left frontal lobe. The patient was right-handed, but there was absolutely no aphasia of any description.

(3) Enormous gliomatous tumour involving and destroying the greater part of the left frontal and temporo-sphenoidal lobes, and a large part of the left occipital lobe. Speech was absolutely normal, and there was neither word-deafness nor word-blindness.

REVIEWS.

MANUEL COMPLET DE GYNECOLOGIE MEDICALE ET CHIRURGICALE.*

THE Gynæcology of to-day no longer bears any resemblance to that of Nonat, Courty, and Churchill; the medical pathology that formerly devoted long chapters to the different forms of metritis has been replaced by clear and precise descriptive methods, and these have caused the treatment of diseases peculiar to women to become more and more surgical. While this evolution has been taking place many remarkable variations in methods of treatment have occurred, some no doubt to be explained by the advance of Asepsis and of surgical technique, others rather to be attributed to changes in fashion, or to the incessant search for novelty that characterises the present generation. Changes in treatment ought to be based on an intelligent study of pathological anatomy and histology, and surgical proceedings should only be decided upon in any given case after a careful study of the history, symptoms, and physical signs. For this reason, and because there occur in women many affections requiring purely medical treatment, Dr. Lutaud is of opinion that in a work devoted to gynæcology, medical pathology properly so called should still find a place. While, therefore, a very large portion of the present work is occupied by descriptions of operative methods and procedures, care has been taken to preserve whatever appears to be rational in medical therapeutics, and to afford sufficient space for the anatomical and clinical descriptions of the various affections.

The book is divided into eight parts, of which the first is devoted to anatomy, embryology, physiology, and faults of development in the female genital organs; the second treats of the methods of examination and of the means of diagnosis and of treatment; and the third of minor surgical gynæcology. The remaining five parts deal in order with the diseases of the different organs and tissues, each disease being described under the following headings:—pathological anatomy, ætiology, symptomatology, course, medical treatment, and surgical treatment.

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* Manuel Complet de Gynecologie Medicale et Chirurgicale, par A. Lutaud. Paris: A. Maloine. 1900.

The account of displacements from the stand-points of pathology and clinical importance is less satisfacfactory than many other portions of the work, and it is somewhat surprising to find recommended and figured in the treatment of anteversion a number of pessaries that might have been supposed to be obsolete. In the treatment of sterility again artificial impregnation takes up four pages; no less than four modifications of the proceedings are given, and the account ends up with an expression of opinion that the methods render this operation perfectly compatible with the dignity of the physician and with the modesty of the woman.

Dr. Lutaud has succeeded very well in giving a succinct and readable account of the art of gynæcology as it is now practised in France. The attention given to different portions of the subject is on the whole well balanced. The volume is got up in handsome style, and the printing is bold and clear. The illustrations, 607 in number, are on the whole satisfactory, and the book is brought to a logical and fitting conclusion by a picture on the last page but one of a female patient who has apparently just undergone laparotomy and is now being carried to bed in the arms of three male attendants.

A MANUAL OF GYNÆCOLOGY FOR STUDENTS AND PRACTITIONERS.*

THE chief difficulty that meets the teacher of Gynæcology is that of finding material for the practical instruction of his students, and as a consequence of this difficulty it is to be feared that many men when starting practice are apt to look upon the diseases peculiar to women as so many hidden mysteries. In order that the student may derive the greatest possible profit from clinical work it appeared to Professor Dührssen that a short and terse handbook on the whole subject of gynæcology was desirable, and the book before us is intended to supply the want. That there was a demand for such a work is proved by the fact that the volume before us, the second English edition, is translated from the sixth German edition.

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* A Manual of Gynæcology for Students and Practitioners. By Dr. A. Dührssen. Second English edition, translated and edited from the sixth German edition, by John W. Taylor and Frederick Edge. London: H. K. Lewis. 1900.

Professor Dührssen has aimed more particularly at meeting the requirements of those students and young practitioners who may find themselves called upon to assist at operations and aid in the after-treatment of such cases, and hence a considerable portion of the book is taken up with the description of surgical methods and procedures. As a consequence the amount of space available for the consideration of the clinical and pathological description and methods of diagnosis of the various diseases has been curtailed, and the utility of the work to the beginner and to the ordinary practitioner appears to us to be thereby lessened.

The author has more particularly associated his name with the vaginal method of operation for retroversion, and a capital description of the method is given, together with a short account of the various modifications that have appeared from time to time necessary. Dr. Dührssen's experience extends to 600 cases of the operation, and since he has adopted the intraperitoneal method described here he claims that he has not had a single relapse, but on the other hand, admits a mortality of 2 per cent. To the main objection that has been urged against the operation, viz., that it leads not uncommonly to grave interference with the process of labour, it is urged that it appears to be always possible to meet the dangers successfully when they arise, and further, that they can be avoided by certain modifications in the technique.

Care has been taken to bring up to date the information contained in the present edition, as is shown for instance by the mention on page 273, of Snéguireff's method of treatment by live steam. Neither the author nor the translators appear to have had personal experience of this method of vaporisation, which seems to be less manageable than curetting, and offers no compensating advantages.

The translators have done their part of the work well, and the value of the book to English readers is enhanced by the foot notes on the differences in treatment and method that prevail here. In the present edition the chief alteration consists in the insertion at the beginning of a short account of the anatomy of the female pelvic organs, for which the translators are apparently responsible. In this part of the work, at page 41, a doubt seems to exist as to the inclusion of the ovaries between the folds of the broad ligaments; surely the ovary is not included between the layers, but is attached to the posterior layer by a mesovarium. At the same place a reference to p. 28 is wrongly given as to p. 38.

The volume differs from many so-called manuals in being really of handy size; the paper is good, the printing clear, and the binding strong. The illustrations vary much in quality; some are good, some have suffered from the reduction in size that has been found necessary, while a few, notably Figs. 33, 34, and 35, and Figs. 64 and 65, are so indistinct as to be useless.

The book is of importance as giving in a brief and convenient form an account of gynæcology that cannot fail to be useful to those for whom it is chiefly intended, to those, namely, who have finished their examinations and find themselves beginning the more practical and responsible work of the profession.

PYE'S SURGICAL HANDICRAFT.*

To those who are engaged in teaching minor surgery no book appears more complete and useful than Pye's Surgical Handicraft. Many have been written, but for completeness, practicability, and absence of unnecessary detail, we are not aware of one that can be compared to it. Mr. Rogers has thoroughly revised the present edition and cut out a good deal that had become superfluous, and has brought the remainder up to date. The many errors that appeared in earlier editions have all been corrected. The chapters on Hæmorrhage are well done, clear, and complete, although we notice that a long description is given of the obsolete "Davy's lever," but nothing is said of the use of "Wyeth's pins" in controlling hæmorrhage at the hip joint. In the illustrations of the spica bandages of the shoulder and groin a circular turn is made round the limb, thus compressing the veins. It is not stated so in the text, but is calculated to lead students astray and get them into trouble with the College examiners. We are glad to see that the use of the "Perineal Band" in fractures of the femur is not advised. The treatment of wounds is described clearly and fully and with due regard to modern methods. A little more stress might well be laid on the use of Jacque's catheter for the relief of retention in enlarged prostates. An injection of apomorphine is suggested under alcoholic poisoning. This, in our experience, has proved most dangerous, and one which ought to be used only under the most exceptional conditions. Again, we must object to the statement that "A short experience will enable the dresser to separate ordinary cases of drunkenness from other forms of poisoning." Cases of this kind are often most difficult, so frequently severe injury or poison being complicated with alcoholic poisoning.

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* Pye's Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery, and other matters connected with the work of House Surgeons and Surgical Dressers. Fourth Edition. Revised and edited by Bertram M. H. Rogers, B.A., M.D, B.Ch. Oxon. Bristol: John Wright and Co.

A useful chapter has been added on the X Rays. Our experience of the localisation of gall-stones and stones in the kidneys and bladder is that the X Rays are not of much use. With these few exceptions we have found but little to disagree with, and shall continue to recommend the book as the best for our students to read before presenting themselves for examination at the Royal College of Surgeons of England. Every junior practitioner will find much that will be useful to him in his practice.

A CONTRIBUTION TO THE STUDY OF EPIDEMIC DIARRHŒA.*

In Dr. Newsholme's Presidential Address to the Incorporated Society of Medical Officers of Health he takes up the subject of Epidemic Diarrhœa, and subjects the conditions under which it occurs to a searching examination. Dr. Newsholme's contributions to the science of Public Health are always worthy of the most careful study: they are models of clear reasoning and sound deduction, and rarely fail to throw some new light on the subjects with which they deal. In the present instance a series of most important statistical tables lead him to the following conclusions:—(1) Diarrhœa is especially prevalent in towns with a high temperature and a deficient rainfall, especially in the third quarter of the year. "This relationship is so close that the towns may be classified meteorologically in the order in which they ought to stand in reference to diarrhœa, and their true relative position as to domestic and municipal sanitation may be ascertained when we know whether they occupy a better or worse position on the list of towns than that which their meteorological place would indicate as rightly belonging to them." (2) Diarrhœa is in general least prevalent among populations living on impervious and rocky soils. (3) Diarrhœa is most rife in towns in which the systems of removal of sewage and house refuse are the least satisfactory. It is true that certain towns with a large number of pail-closets are comparatively free from outbreaks of diarrhœa, an advantage which is probably due to favourable climatic and physiographical conditions. But even in these it is likely that the prevalence of the disorder would be diminished if the water-closet system were to be widely adopted. (4) "The fundamental condition favouring epidemic diarrhœa is an unclean soil, the particulate poison from which infects the air, and is swallowed, most commonly with food, especially milk."

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* A Contribution to the Study of Epidemic Diarrhœa. By Arthur Newsholme, M.D. (Lond.), F.R.C.P. (Lond) London: Rebman, Ltd. 1900.

The latter part of Dr. Newsholme's address deals in detail with the physical and hygienic conditions existing in most of the large English towns, and their bearing on the subject under discussion. They are well worth a careful perusal, as is the whole pamphlet.

ON NEUROMA AND NEURO-FIBROMATOSES.*

MR. ALEXIS THOMSON has in this book treated an interesting and, in the ordinary text-book, a somewhat neglected subject, in an exhaustive manner, relying for his description, as far as possible, upon cases which he himself has met with, and, where his experience is lacking, having resort to cases of which details have been recorded by other authors. The true neuroma is the first variety chosen for description, Mr. Thomson being merely able to give details of the only five authenticated cases which have been put on record. It appears that in each of these cases the growths were in connection with the sympathetic system, and that in neither instance was there any general neuro-fibromatosis. The author considers that the circumscribed or solitary false neuromata should be placed in a special class, because, though several of the growths may be present in the same individual, there is no general fibrous thickening of the nerve trunks. Such tumours may be innocent or sarcomatous, and as regards the latter, if the tumour occurs on one of the extremities, Dr. Alexis Thomson is very definite in his opinion that the only treatment at all likely to be efficacious is high amputation of the limb. The cases he records seem to show that his opinion is correct.

Under the heading of diffused neuro-fibromatosis the author includes—(1) Generalised neuro-fibromatosis; (2) Plexiform neuro-fibromatosis; (3) Cutaneous neuro-fibromatosis, or molluscum fibrosum; (4) Elephantine neuromatosa. It will be seen, therefore, that a most comprehensive view of the subject is taken, and that Von Recklinghausen's opinion that molluscum fibrosum originates as a fibrosis of cutaneous nerve-filaments, is adopted. All these conditions are discussed in the greatest possible detail, the descriptions being clear and the plates excellent.

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* On Neuroma and Neuro-fibromatoses. By Alexis Thomson. M.D., F.R.C.S.E. Pp. 168; 20 plates. Edinburgh: Turnbull and Spears. 1900.

We congratulate Dr. Alexis Thomson on having produced a book which, for many years to come, will, we are sure, be looked upon as the standard work on the subject in the English language.

RECORDS FROM GENERAL PRACTICE.*

It is Dr. Kingston Barton's intention to publish in serial form some notes of the experience gained in the course of a lengthy general practice. The plan is an admirable one and we heartily wish him success. It is greatly to be regretted that the special knowledge and experience acquired in general practice is so seldom represented in medical literature, for it has a practical value all its own. If only from the point of view of example, therefore, Dr. Barton's venture is to be warmly welcomed. But the records possess also value and interest in themselves. They include notes on a series of fifty cases of acute abdominal disease, brief records of other abdominal cases, and notes on certain rarities met with in urine testing, prenatal pathology, deficiency of enamel in teeth, the causes of the early decay of the permanent teeth, etc. The only suggestion that we have to offer is that greater prominence should be given in future numbers to the clinical aspect of general practice, and that Dr. Barton should deal more fully with the difficulties of diagnosis and treatment with which he has been confronted in dealing with his cases. In that case we are sure that the periodical will appeal to a large circle of readers.

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* Records from General Practice. By J. Kingston Barton, M.R.C.P. Lond., M.R.C.S. Eng., J.P. London : John Bale, Sons, and Danielsson, Limited. 1900.

GLASGOW HOSPITAL REPORTS. VOL. II.

LAST year we had occasion to notice the first volume of the Glasgow Hospital Reports, and were able to predict a considerable degree of success for this latest addition to the various Hospital Reports of the United Kingdom. The appearance of the second volume fully justifies what was said. The present volume is considerably larger than the first, containing some 27 papers, many of which are of the utmost clinical and scientific interest. Dr. George Middleton contributes a paper on Four Cases of Aneurism of the Aorta, all attended with more or less difficulty of diagnosis. Dr. W. K. Hunter describes a case of Gastric Tetany together with the microscopic appearances found in the brain and cord. It was noticed that a large amount of yellow pigment was present in the ganglion cells of the pons medulla and cord, and there was also hyaline degeneration of the vessels. The pigmentation was a very marked change, and as a rule seemed to be collected together into one part of the plasma, the nissl bodies being apparently unaffected. This paper is beautifully illustrated. One of the most interesting articles in the series is that by Dr. C. O. Hawthorne, on the Clinical Significance of Double Optic Neuritis in Children and Young Adults, and on the Capacity for Recovery from Symptoms of Tumour of the Brain. The writer quotes several cases in which there is every reason to suppose that an intracranial growth was present, symptoms, such as vomiting and pain being marked, while the ophthalmoscope showed the presence of optic neuritis in all degrees. Other cases again showed optic neuritis only, while in some there was loss of knee-jerk and various other symptoms. In some of these cases all the symptoms subsided, though permanent blindness from optic atrophy resulted. The object of the paper is to draw attention to the uncertainty both of the diagnosis and prognosis in such cases. Many cases seem to be diagnosed as intra-cranial growth with perhaps undue haste, while in others the prognosis is extremely uncertain. It is pointed out that subsidence of symptoms may be merely temporary and very deceptive, especially when occurring rapidly. Gradual amelioration is more hopeful. We cannot quite agree with the author's statements as to the rarity of optic neuritis in cases of chlorotic anæmia. We believe from personal experience that it is more often present than is usually supposed. Dr. Campbell Marshall contributes a long article on the Employment of Anti-streptococcus Serum in Scarlatina, with which he seems to have had some satisfactory results. Several interesting cases of operation for Spina Bifida are given by Mr. James H. Nicoll who has already done valuable work on this subject. Many of the illustrations throughout the book are of much value.

A TREATISE ON NASAL SUPPURATION*

In a complicated system of long cells, all of which discharge their secretions into the cavities of the nose, there must of necessity be some difficulty in diagnosing those which are at fault. Dr. Grünwald has shown that it is practicable to overhaul each of the cells by means of the nasal probe, which in his hands is made to tell of suppurations, polypi, caries, necrosis, etc. We are indebted to him for a method of plugging up the various orifices of the cells so that one may see which the pus comes from, when the plugs are removed. In addition to the usual instruments employed in making a diagnosis, he insists on the use of the probe, which he says "should never be omitted in any case," and with it "one can explore the most hidden corners" His views on the beginnings of gelatinous polypi are original, and will bear attentive study. He counsels repeated examinations of every case, even if the first should prove satisfactory, and not to cease when one has gone on to treatment. The best part of the book is from p. 42 to p. 85, where he treats of "orœna" and combats the notion of its being a disease *sui generis*. We have read this book with more than ordinary pleasure, for it is most readable. In it he shows that he has a very large grip of his subject with a mellowness of argument which can proceed only from a ripe judgment.

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* A Treatise on Nasal Suppuration, or Suppurative Diseases of the Nose and its Accessory Sinuses. By Dr. Ludwig Grünwald (of Munich). Translated from the Second German Edition by William Lamb, M.D., M.C. Edin., M.R.C.P., Lond. (of Birmingham). With eight illustrations in the text, two plates, and one table. London : Ballière, Tindall & Cox, 20 and 21, King William Street, Strand. (Paris and Madrid.) 1900.

This book is clearly printed, and the illustrations are good. Dr. Lamb is to be congratulated not only upon the neatness and clearness of his translation, but upon the fact that he has given to the British Medical World a book of such excellence.

HEART DISEASE IN CHILDHOOD AND YOUTH.*

Sir Samuel Wilks says that "the author has done well to select some marked examples of these affections, describing fully the symptoms and treatment which have been found most serviceable, in order to illustrate what may be accomplished in a class of diseases usually called incurable." If anyone has been accustomed to relegate this class of cases to the limbo of incurability, the perusal of Part II. of this little book should open his eyes to the possibilities of treatment. In it some 30 cases of heart-disease in children and young people are described more or less fully, and the special points of each case commented on, the comments being always thoughtful and frequently valuable. In Part I. an attempt is made to deal generally with the causes, prognosis, hygienic management and therapeutics of cardiac disease in the young in 21 short pages. The result is necessarily somewhat sketchy. Nevertheless useful hints, especially on education, exercise, sports and games, and the rôle of drugs, including alcohol, may be found. Certainly no one, after reading this book, can be excused for failing to treat any case of this kind strictly on its individual merits. There is unfortunately a certain carelessness of detail exhibited, as in the statement, "the body-weight improved from 3st. 12lbs. to 4st. 5lbs., being a gain of 9½lbs.; or where "a diet suited to *her* age" is spoken of in the case of "L. B., a boy aged two years." Moreover, there is a disregard of the niceties, even the decencies, of English composition, common, unfortunately, to so much of the medical writing of the day.

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* Heart Disease in Childhood and Youth. By George W. Chapman, M.D., Durham, M.R.C.P., Lond., Physician to the National Hospital for Diseases of the Heart, Soho Square, W., late Physician to the Farringdon Dispensary. E.C. With an introduction by Sir Samuel Wilks, Bart, M.D., F.R.S., Physician Extraordinary to H.M. the Queen; Ex-president of the Royal College of Physicians, and Consulting Physician to Guy's Hospital. London: The Medical Publishing Co. Limited.

EDINBURGH HOSPITAL REPORTS.*

After a considerable interval the Edinburgh Hospital Reports have been, we are glad to say, resumed, the publishers now being Messrs. Oliver and Boyd. The present volume contains an extensive series of valuable original papers and reports on cases of clinical interest. Three cases of Chronic Progressive Chorea (Huntington's) are recorded by the late Dr. George Elder. The account of these is very complete and will form a valuable addition to the literature of the subject. Aortic Aneurism in Childhood is a comparatively rare condition, and we are not aware that many cases are on record. Dr. Burn Murdoch records a case with *post mortem* examination occurring under his observation at the Royal Hospital for Sick Children. The patient was a boy aged 12 years and 3 months. The cause seems to have been ulcerative endocarditis. There was a small sacculated aneurism beginning a short distance above the coronary arteries, the sac being about 2 cm. in diameter. Dr. J. S. Fowler records a case of true Congenital Hemihypertrophy in a child aged 10 months. A useful contribution is that by Dr. Shennan, who gives the results of a statistical examination of a large number of cases of Tuberculosis in Children. The surgical contributions are many and varied, and include notes on Tetanus by Messrs. Miles and Struthers, "Electrolysis" by the late John Duncan, and another paper on the subject of Angioma by the same writer, both of which are published from MSS. which he had left. It is a pleasure to be able to say that the present volume of Reports will prove of value and interest in all departments of Medicine. At the same time we rather feel that the statistical tables, covering 108 pages, might have been abbreviated, or some of the less important omitted.

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* Edinburgh Hospital Reports. Vol. v. Edinburgh: Oliver and Boyd.

THE ANATOMY OF THE BRAIN.*

THE anatomy of the brain has always been something of a stumbling-block to students of medicine, qualified and unqualified. We doubt whether there are many, outside those who are constantly working at the subject, who, even if they have ever attained a really clear understanding of the arrangement and constitution of the different tracts of the brain, retain that knowledge for any long period. Yet for the localisation of cerebral disease such an anatomical knowledge is essential, and any writer who can render it an easy matter to refresh the memory and obtain an up-to-date account of these matters performs a real service to the profession. Professor Whitehead has rendered this service in a very able manner. His book necessarily contains nothing original, but great credit is due to him for the exceeding clearness of its arrangement, and the manner in which the connections and constitution of the various complicated tracts are rendered easy to follow and to understand. This result is greatly aided by the numerous illustrations. More than one-third of the total number of pages are occupied by excellent engravings. We hope that the book will be as widely studied as it deserves to be.

THE DIAGNOSIS AND TREATMENT OF SYPHILIS.†

THIS book has now reached the dignity of a second edition. It has many good points, and gives a clear though not profound account of the chief external manifestations of syphilis. But Dr. Robinson displays his interest in these external effects almost to the exclusion of the equally important visceral and general lesions. It is true that a short chapter is devoted to syphilitic nervous affections, but with this exception the viscera pass unnoticed. The chapter on Syphilis of Special Organs deals only with the eyes, ears, and testicles, and nowhere in the book can we find any reference to the morbid results met with in the liver, lungs, heart, and other organs. The account of the nervous disorders is very meagre, especially as regards the very interesting and varied spinal affections, and no mention is made of general paralysis of the insane, whose connection with syphilis is so clearly established. Again the lesions of the blood-vessels are briefly noticed only in the nervous section, and their wide-reaching effects on the health and life of the patient are given no adequate expression. These omissions are curious in a book which has passed through more than one edition. We hope that they will be remedied in the third issue to which it will doubtless attain.

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* The Anatomy of the Brain: A Text-Book for Medical Students. By Richard H. Whitehead, M.D., Professor of Anatomy in the University of North Carolina. Philadelphia, New York, and Chicago: The F. A. Davis Company, Publishers. 1900.

† The Diagnosis and Treatment of Syphilis. By Tom Robinson, M.D., Physician to the Western Skin Hospital. London: J. and A. Churchill. 1900.

BURDETT'S HOSPITALS AND CHARITIES.*

Sir Henry Burdett's Annual Guide to the British and American Hospitals, Asylums, Medical Schools, and allied institutions, possesses an interest altogether independent of the valuable nature of the compilation. This interest centres in the critical introductory chapters with which the book always opens, and the scope and character of which vary year by year in such a way that a complete collection of these chapters would go far to form a systematic dissertation on hospital management and the ethics of medical charitable relief. This year the first chapter is devoted to a critical analysis of the financial position of the London Hospitals taken as a whole, from which the surprising fact is elicited that during the past year the income of the combined general hospitals exceeded the expenditure by no less a sum than £82,835. The special hospitals are in a very similar position, the surplus income amounting to £52,473. In the face of the urgent appeals for help with which the charitable public is constantly confronted, this statement is a most remarkable one, but Sir Henry Burdett's wide knowledge of the subject, and the careful accuracy of his work, leave no doubt as to its correctness. The chapter contains also an elaborate and instructive investigation into the positions of the several individual hospitals, into which it is impossible for us to enter. Several other chapters deal with various other aspects of the charitable problem, and contain a veritable mine of information which is, as far as we know, to be found nowhere else in medical literature.

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* Burdett's Hospitals and Charities: being the Year Book of Philanthropy and the Hospital Annual. By Sir Henry Burdett, K.C.B. London: The Scientific Press (Limited).

THE AMERICAN YEAR BOOK OF MEDICINE AND SURGERY.*

We have previously expressed the opinion that the American Year Book of Medicine and Surgery, published under the editorial charge of Dr. George M. Gould, is one of the most valuable of the numerous yearly summaries of medical progress. The present volumes certainly give no reason to change that opinion, for they contain an invaluable digest of an enormous mass of literature. The abstracts are, moreover, sufficiently extended to give an adequate idea of the main points of the papers which they represent. The one disadvantage from which the book has hitherto suffered, namely, its excessive bulk, has this year been obviated by its division into two separate volumes, devoted respectively to medical and surgical subjects, and the gain in point of convenience to readers is very material. Certain changes in the editorial staff are recorded in the preface, but although a few valued assistants have been compelled to retire very satisfactory appointments have been made in their place, and the work has not been allowed to suffer from the alterations.

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* The American Year Book of Medicine and Surgery. Edited by George M Gould, M.D. London: Rebman, Limited. 1900.

ANNUAL AND ANALYTICAL CYCLOPÆDIA OF PRACTICAL MEDICINE.*

THE fifth volume of Dr. Sajous' Annual and Analytical Cyclopædia of Practical Medicine brings the publication up to the end of "Rabies." The scope of this most important work has been explained in former notices and is strictly adhered to in the present volume. This, like its predecessors, contains many admirable articles, and gives an excellent representation of most of the important original medical and surgical work carried on during the past three years. Special attention is deservedly called in the preface to the articles on Nursing and Artificial Feeding by Drs. L. Emmett Holt and L. E. La Fétra, Disorders of Pregnancy by Dr. Currier, Abnormal Parturition by Drs. Grandin and Marx, Pleurisy by Dr. Alexander McPhedran, Catarrhal Pneumonia by Dr. Solomon Solis-Cohen, and Lobar Pneumonia by Dr. Thomas J. Ashton. These stand out from the rest of the articles by reason of their greater fulness and elaboration, and are very valuable summaries of their respective subjects. We can well understand that the preparation of the volume, as stated by Dr. Sajous, has involved an unusual amount of labour, especially owing to the numerous specialities touched upon, but Dr. Sajous may congratulate himself upon the result attained.

MANUAL OF MIDWIFERY.†

THIS is the second edition of a work originally published in 1896 "for Edinburgh men by an Edinburgh man." The matter is not only so good but is presented in so readable a form that it is well worth the attention of other than Edinburgh students or practitioners. The chapter on the Management of Normal

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* Annual and Analytical Cyclopædia of Practical Medicine. By Charles E. de M. Sajous M.D., and Five Hundred Associate Editors, assisted by Corresponding Editors, Collaborators and Correspondents. Volume v. Philadelphia, New York and Chicago: The F. A. Davis Company, Publishers 1900.

† Manual of Midwifery. By W. E. Fothergill, M.D., of Manchester.

Labour is faultless, and if all normal cases were conducted in the way described with due attention to asepsis we should certainly see less morbidity after confinements, if not less mortality.

There are only two points we would criticise. We do not think it advisable to tell students to plug the vagina in any cases of placenta prævia—plugging the cervix of the uterus is a very different thing. Secondly, the chapter on Ectopic Pregnancy is hardly as clear as it might be. The older classification of the forms is used, and the terms "sub-peritoneo-pelvic" which through growth becomes "sub-peritoneo-abdominal," convey less information than those used by Mr. Taylor in his Ingleby Lectures. The fact that as a "tubo-ligamentary" pregnancy advances it may ascend in front of or behind the peritoneum is not noticed.

To those students who desire a readable book on Midwifery, not too large and on the whole sound as to treatment, we recommend this work. The illustrations are excellent, and, what is rare in a midwifery book, there are very few superfluous ones.

DISEASES OF THE GALL BLADDER AND BILE DUCTS, INCLUDING GALL-STONES.*

ALL interested in the surgery of the gall bladder and its ducts will welcome the second edition of Mr. Mayo Robson's work on the subject Since the first edition was published the author has had a further operative experience in 135 cases, and all his cases are now classified and placed at the end of the sections referring to the operations under consideration. The treatment of gall-stones by medical means is not regarded favourably, and the possible dangers of leaving them for any length of time are frequently pointed out. Quotations are made from the recent experiments of Dr. Brockbank on the solubility of gall-stones in various drugs. Treatment by large doses of olive oil has not yielded any good results in the author's experience. Oleate of soda has appeared to be of use in some cases that either declined or were unfit for operation. The dangers of attempting to move a gall-stone by means of massage are pointed out and its practice is condemned. Any detailed description of the present edition is superfluous, as the general character of the work is so well known. We can heartily recommend it to physicians and surgeons alike for their most careful consideration.

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* Diseases of the Gall Bladder and Bile Ducts, including Gall-Stones. By A. W. Mayo Robson, F.R.C.S, assisted by Farquhar Macrae, M.B., C.M. Second Edition. London: Baillière, Tindall and Cox. 1900.

THE MEDICAL ANNUAL, 1900.

Messrs. John Wright & Co. have sent us a copy of The Medical Annual for 1900, which contains as usual many articles of value. Dr. Carter contributes a chapter on Diseases of the Heart. There is a long article by C. F. Marshall, M.D., on Syphilis, in which several practical hints are given as to treatment and will repay careful study. Dr. Boardman Reed's contribution on the Stomach is one of the most complete in the volume, and gives the results of much recent work on the subject. It is followed by an able article by Mr. Walter G. Spencer on Surgical Conditions (Stomach) and their Methods of Treatment. Several coloured plates illustrating Mycetoma are well executed. There are, as in previous years, many important articles on special subjects, such as Ophthalmic Surgery, Ear Diseases, etc.

We are glad to congratulate the publishers on the success of this year's Annual.

MONA MACLEAN, MEDICAL STUDENT.*

We have received a copy of the fifteenth edition of Dr. Margaret Todd's deservedly popular novel, Mona Maclean. The story is by this time familiar to most readers of fiction. It must, we presume, be described as a novel partly written with a purpose, that purpose being to protest against the medical treatment of women by members of the opposite sex. The intention, however, is not sufficiently prominent to interfere with the interest of the story, and need not deter those readers who like their fiction unadulterated by any educational flavour. The story is good in itself and the writing much above the average.

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* Mona Maclean, Medical Student. By Graham Travers (Margaret Todd, M.D.). Fifteenth and Cheaper Edition. Edinburgh and London: William Blackwood and Sons. 1900.

THE MEDICAL DISEASES OF CHILDREN.*

THIS is a work of a general nature on Diseases of Children, and contains clear accounts of diseases of the stomach and intestines, the heart, etc. Some of the descriptions are too brief. One of the features of the work is copious illustration of microscopic morbid anatomy. These are taken from microphotographs. In many instances they are too small to be serviceable, and all lack clearness. The paragraphs on Treatment are clear and practical. We can safely say that while not exhaustive Dr. Oppenheim's book will prove useful, especially to the general practitioner.

YEAR BOOK OF THE SCIENTIFIC AND LEARNED SOCIETIES OF GREAT BRITAIN AND IRELAND.†

THE seventeenth Year Book of the Scientific Societies of Great Britain and Ireland, just issued, follows strictly the lines of its predecessors. These have invariably afforded a most valuable guide to the various British learned societies, giving the names of the officers for the year, details concerning meetings and membership, and a list of papers read during the past session. The information given is nowhere else obtainable, and the publication is therefore sure of meeting with ample support from those interested in scientific work.

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* The Medical Diseases of Childhood. By Nathan Oppenheim, M.D. New York : The Macmillan Co.

† Year Book of the Scientific and Learned Societies of Great Britain and Ireland. Compiled from Official Sources. Seventeenth Annual Issue. London : Charles Griffin and Company, Limited. 1900.

THE POCKET FORMULARY FOR THE TREATMENT OF DISEASE IN CHILDREN.*

It is but little more than a year since we reviewed the first edition of Dr. Freyberger's Pocket Formulary for the Treatment of Disease in Children. A second edition has become necessary, not only on account of the exhaustion of the first, but also in order that the book might be brought into line with the new Pharmacopœia. The opportunity has been taken to make considerable alterations in the text; several new drugs and preparations have been added, together with recipes for medicated baths and extensions in the Therapeutic Index. The value of the book has been materially increased by these alterations.

LITERARY NOTE.

Rebman Limited announce the following new books as just issued:—

"The International Text Book of Surgery," by British and American Authors. in two volumes. Edited by A. Pearce Gould, M.S., F.R.C.S, of the Middlesex Hospital, and J Collins Warren, M.D., LL.D, of Harvard Medical School.

"An entirely new Cyclopedia of Practical Medicine and Surgery," in one volume, illustrated. By 70 special contributors. Compiled under the Editorial supervision of Drs. George M. Gould and Walter L. Pyle, of Philadelphia.

"A Text Book of Pharmacology and Therapeutics, or the action of Drugs in Health and Disease." By Dr. Arthur R. Cushny.

"The Gross and Minute Anatomy of the Central Nervous System," By Dr. H. C. Gordinier.

"Gould's Year Book of Medicine and Surgery for 1900," in two volumes. (Medicine and Surgery).

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* The Pocket Formulary for the Treatment of Disease in Children, By Ludwig Freyberger, M.D. Vienna, M.R.C.P. Lond., M R.C.S. Eng, Clinical Assistant, Hospital for Sick Children, Great Ormond Street. Second, Revised and Enlarged Edition. London: Rebman Ltd. 1900.

The same publishers also announce the following for early publication :—

Volume II. of Prof. Deaver's work on "Surgical Anatomy"

A new book by Mr. A. Marmaduke Sheild, entitled "The Causes, Consequences, and Treatment of Nasal Obstruction."

"A Treatise on the Theory and Practice of Medicine for Students and Practitioners." By Dr. H. W. Syers, of the Great Northern Central Hospital, London.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

We have received from Messrs. Burroughs, Wellcome and Co., samples of tabloids of Subnitrate of Bismuth, Rhubarb, and Bicarbonate of Sodium. The mixture is one the usefulness of which needs no comment, and the tabloid form is particularly to be recommended in that it gets rid of the unpleasant taste which the rhubarb gives to a solution of the drugs. The tabloids undergo rapid disintegration in the stomach, and absorption is therefore easy.

New Books, etc., Received.

From Young J. Pentland—
  The Edinburgh Medical Journal. Edited by G. A. Gibson, M.D., F.R.C.P. Ed. New Series. Vol. vii.

From the Cambridge University Press—
  Histology of the Blood. Normal and Pathological. By P. Ehrlich and A. Lazarus. Edited and Translated by W. Myers, M.A., M.B., B Sc., with a Preface by G. Sims Woodhead M D.

From Charles Griffin and Company, Limited—
  Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Seventeenth Annual Issue.
  Flesh Foods, with Methods for their Chemical, Microscopical, and Bacteriological Examination. By C. Ainsworth Mitchell, B.A. Oxon., F.I.C., F.C.S.

From J. and A. Churchill—
Rheumatism, Rheumatoid Arthritis, and Subcutaneous Nodules. By C. O. Hawthorne, M.D., M.R.C.P.

From Trow Directory Printing and Bookbinding Company—
Medical and Surgical Report of the Presbyterian Hospital in the City of New York. Volume iv.

From John Wright and Co.—
Operative and Practical Surgery. By Thomas Carwardine, M.S. Lond., F.R.C.S.

From H. K. Lewis—
Medical Electricity. By H. Lewis Jones, M.A., M.D. Third Edition.

From Cassell and Company, Limited—
Tropical Diseases; a Manual of Diseases of Warm Climates. Revised and Enlarged Edition. By Patrick Manson, C.M.G., M.D., LL.D.

We have also to acknowledge the following—
On Galvanism, Food Causation of Cataract, Cancer, Diabetes, and Locomotor Ataxia. By Ephraim Cutter, LL.D., and John Ashburton Cutter, B.Sc., M.D.
Sixty-fifth Annual Report of the British Medical Benevolent Fund for the year 1899.
The Contagiousness of Phthisis, and other Papers. By Lawrence F. Flick. M.D.
A Rare Variety of Adenocarcinoma of the Uterus, and other Papers. By Thomas S. Cullen, M.B.

⁂ Authors can have reprints of articles at the following rates:—

Not exceeding 8 pages	...	8/- per 100
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The re-arranging of the type is the principal cost in the production of these reprints, so that smaller numbers will be the same price. Larger numbers at a proportionate reduction.

The Subscription to the *Birmingham Medical Review* is 6s. per annum, post free.

NOTICE.—*All Communications, Exchanges, and Books for review, should be sent direct to the Printers and Publishers, Messrs. Hall and English, 71, High Street, Birmingham.*

THE
BIRMINGHAM MEDICAL REVIEW.
SEPTEMBER, 1900.

ORIGINAL COMMUNICATIONS.

THE INGLEBY LECTURES.

ON THE COMMONER NEUROSES OF CHILDHOOD, THEIR PATHOLOGY AND TREATMENT.

Delivered at the Mason University College, Birmingham, July 4th, 1900.

BY O. J. KAUFFMANN, M D., M.R.C.P. LOND.,
PHYSICIAN TO QUEEN'S HOSPITAL, LATELY PROFESSOR OF PATHOLOGY,
MASON UNIVERSITY COLLEGE, BIRMINGHAM.

LECTURE II.

Mr. Dean and Gentlemen—

Migraine, and recurrent paroxysmal headaches which are deficient in the special characteristics that distinguish migraine, are common in children, the latter type being particularly frequent. It would be an error to attempt a sharp separation between these two affections, for although the characteristics which mark migraine—viz., the sensory symptons, the unilateral commencement of the pain, and the sickness and vomiting—are very prominent, yet we find that typical attacks of hemicrania alternate with simple non-migrainous headaches, and that one form may, in any individual sufferer, replace the other in the course of time. Moreover, the vaso-motor symptoms and the fluctuations in the blood pressure, which in typical migraine are so pronounced, are seldom, if ever, quite absent from recurrent headaches of the simple kind. Precisely the same causes are found to produce both these forms of cephalalgia.

The true character of these headaches is shown by their recurrent character, a slight cause sufficing, in those who are predisposed, to bring on a paroxysm; and it follows that in dealing with cases of this kind we must attack the predisposing factors, if they be accessible to treatment. In the opposite event we must content ourselves with recognising those causes which immediately excite the paroxysms and instructing the patient to avoid them. Children suffering from this complaint usually show evidence, even in the intervals between the attacks, of being out of health, but in exceptional instances they appear to be in good physical condition. Without going into great detail, the causes which lead to migraine may be stated thus: 1. Heredity, direct or indirect. 2. Overwork, mental or physical. 3. Overstrain of the eyes. 4. Slight Injuries. 5. Metallic intoxication, tobacco intoxication, and alcoholic intoxication. 6. Depressed general health arising from either (1) previous disease, (2) respiratory intoxication, (3) disorders of the alimentary tract, or (4) unsuitable diet. 7. Indigestion and constipation without evident impairment of the general health. It will be at once seen that no definite line severs the predisposing from the exciting causes; for in an individual who is led to the verge of migraine by, say, overwork at school, a slight extra amount of work will precipitate an attack.

Now, if we consider the toxæmic conditions which predispose to these headaches we are struck by the prevalence of those which arise from unsuitable diet or from other disorders of the alimentary canal. Very often one can elicit a history of constipation, and this or an account of irregularity of the bowels will generally direct us straight to the cause of the trouble. Then we shall on inquiry often be confronted with an account of most unsuitable feeding; the child either has its meals irregularly or they consist of materials quite unfit for its consumption, and very usually the diet is faulty in both these particulars, Even a short experience will convince any observer that in these two conditions, constipation and faulty feeding, are founded a large number of cases of migraine. There may be, on the other hand, a state of catarrh of the gastro-intestinal tract which is not due to errors of diet or constipation, but which results from infective disease. Measles and whooping-cough are particularly liable to leave behind them such a condition. Infective diseases may also lead to migraine by simple enfeebling of the general health without there being any evidence that the alimentary canal is specially affected, and where scarlet fever has been the forerunner of recurrent paroxysmal headaches one should be careful to exclude nephritis, which is often overlooked and may first show its presence by these attacks.

A not uncommon cause of migraine and the related headaches is the respiration of air which is contaminated by repeated breathing, and in cases where careful inquiry fails to elicit alimentary disorders or the history of an infective disease, insufficient ventilation should be thoroughly looked for. That the effect is produced rather by the poisonous material contained in the air than by deficient oxygenation of the blood is shown by the comparative rareness of migraine or paroxysmal headache in those who suffer from cyanosis, the result of chronic cardiac or pulmonary disease. It has been remarked that patients suffering from migraine usually bear evidence of being out of health; but even where the cause is a toxic one this does not hold true universally, and although in the majority of these cases we notice the langour of the expression, the coated tongue, and the vascular stigmata, yet the child may look perfectly well. In such cases there is often excessive indicanuria which will guide one to the cause of the trouble. Another feature of these toxæmic patients is that their headaches generally begin in the morning, either before rising or soon after, and the reason of this is the comparative inactivity of the kidneys during sleep and the consequent accumulation of toxic materials in the blood during the night. Where fatigue or overwork bring on the paroxysms, they occur, on the other hand, most frequently during the latter part of the day. Thus the time of occurrence of the seizures may help us to some degree in recognising the cause of attacks.

I have only a word to say on the subject of heredity, and that refers to cases in which there is evidence of a gouty inheritance. This means that the tissues are inclined to irregular metabolism even when they are supplied with food which is suitable to children who are free from this tendency. In such cases, therefore, successful preventative treatment will lie in regulation of the diet till it suits the individual.

Epilepsy.—Of the neuroses under consideration epilepsy is the most serious, owing to its great frequency and the difficulty of treating it when the disease has lasted any considerable time, and also in consequence of the dangers which the attacks bring with them. The remarks which I have to make shall not apply to those epilepsies which are produced by gross cerebal disease, nor to those single epileptoid attacks which not infrequently in young children mark the onset of an acute infection.

The main causes of epilepsy may be grouped as follows:—
1. Heredity, direct or indirect. 2. Damage to the peripheral nerves, cranial or spinal. 3. Emotion, fright and shock. 4. Masturbation and retained smegma preputii. 5. Commencing or disturbed menstruation. 6. Congenital Syphilis. 7. Uræmia. 8. Alcohol poisoning or lead poisoning. 9. Acute infective diseases. 10. Rickets and teething. 11. Indigestion and gastro-intestinal disorders, including parasitic worms and constipation. It is unnecessary for me to go into detail on each of these points, and I will confine my remarks to the commoner or more important causes.

Emotion.—In children under the age of four years excitement, shock, and fright must be very rare as exciting causes of epilepsy, but in older children this cause is much more frequently operative. It is always necessary, however, to guard against the possible error of assuming this to be the sole cause, for in a number of instances of the disease we shall find that though fright occasioned the first fit, yet one of the predisposing factors such as, *e.g.*, indigestion, was at work long before the fright occurred.

Masturbation. — Masturbation and other irritation of the external genitals is by most authors given as a cause of epilepsy, and I have myself met with a good many instances in which this appeared to be the case. I think, however, that masturbation is a rare cause in boys, and although I have no doubt that it may be effective in producing epilepsy in girls I have never seen a case which could be accepted as satisfactory evidence on the point. Even in boys who masturbate or who suffer from adherent prepuce with retained smegma—which sometimes smells very offensively—and who are the subjects of epilepsy, there have generally been, in my experience, other factors which could not be neglected in the endeavour to get at the true cause of the attacks. In order to illustrate this I will mention a case—that of a boy aged 12 years, of pleasant, frank, intelligent manner, but with a sallow complexion and rather thin and suffering from constipation, who had had several epileptic attacks, two of which were clearly associated with a quantity of indigestible food, and one of which was provoked by want of food beyond the usual interval, coupled with excitement and subsequent over-eating. He was subject to irregularity in his meals and to injudicious feeding. He also had a prepuce which was permanently drawn forward and which concealed a good deal of retained smegma; but there was no offensive smell. It was denied that he masturbated, but the father's attention was drawn to the necessity of being on the watch for the vice. Stricter diet and general hygiene and moderate purgation were prescribed. Some weeks later the patient had another seizure and by this time the father had found out that the boy masturbated and that he was troubled with precocious sexual feelings of which he had quite willingly told his father on straightforward questioning. He was circumcised and for many months after that he had been free from seizures. Now, I shall presently have to point out the great importance which in my opinion attaches to digestive disturbances, more particularly as a predisposing cause for epilepsy, and I feel disinclined to overlook the very evident disorder of the alimentary tract which here existed. There was the constipation and the habitual irregularity of the diet both as regards time and quality of the food. On the other hand, there was masturbation, which was probably excited, like the precocious feelings, by the constant irritation to which the glans penis was subjected by the retained secretion. In the light of my present experience I would interpret the case in the following way: A predisposition of the cerebral centres was set up by the prolonged disorder of digestion, and in this state the brain was easily incited to an epileptic discharge by the stimulus of masturbation or at other times by the stimulus of an extra indigestible meal. One other case has been brought to my notice which is very parallel to that just cited. In this latter patient the considerable size of the external genitals contrasted strongly with the generally poor state of bodily development, whilst, as in the first case, the mind was active and bright. It is also worth considering whether in these two boys the immediate cause of the fits may not have been the mental excitement which the masturbation produced. I know of cases—very rare ones, certainly, but still they occur—in which the act of copulation produces in women a state of frenzy or a condition in which they act precisely as do sufferers from masked epilepsy (*epilepsia larvata*)—*i.e.*, they carry out complicated acts without any evident purpose and without being in the least conscious of them at the time or afterwards. I do not know whether these occurrences happen only in women who are otherwise epileptic or not, but it is this point which has suggested to me the question as regards the excitant of the seizures in the boys just mentioned.

Menstruation.—The incidence of menstruation and the disturbances of this function in young girls are frequently blamed as exciting causes of epilepsy—and probably with justice, for it is undeniable that in many women the commencement of the fits dates from the establishment of the menstrual function. Here, again, it is not quite clear whether the effect is produced in a reflex manner or by the working of the new function upon the emotions. Possibly these two mechanisms act together. My own experience among the women at the Infirmary suffering from long-continued epilepsy has shown me, rather contrary to my expectation but in agreement with the experience of others, that the fits are comparatively rarely aggravated at the menstrual periods, and in fact in the majority of these sufferers menstruation had no apparent influence either on the number or the severity of the seizures.

Rickets and Teething.—These two causes are taken together because they so frequently co-exist and because in cases where they are jointly present it is difficult to gauge the true importance of each. They may, however, also exist separately. Teething may lead to epileptic fits by means of local irritation and reflex reaction. This will, of course, only occur in those children whose nervous centres are already susceptible to the epileptic discharges either through inherited weakness or through disease, and one of the diseases which is most frequently met with in this connection is rickets. Now, we know rickets to be a disorder of metabolism and nutrition, and the central nerve-tissues must share in this disorder, with the consequence that disturbance of their function is brought about; but it is easy to trace rickets a step further back, and we may say with confidence that the cause of rickets lies primarily in faulty diet or in faulty digestion. Rickets, therefore, comes under the more comprehensive heading of diseases of digestion, of which great class of epileptic factors we may say that rickets is a well-defined constituent.

Digestive Disturbances.—Tænia, round-worms, and thread-worms may be associated with epilepsy, and I have met with each of these three causes. As before remarked, these worms never inhabit the intestine for long without producing some change in the mucosa of the gut. Very possibly in many cases a diseased state of the intestinal mucosa precedes, and renders possible, the lodgment of the worms. The intestinal change which we generally find is a chronic catarrh, in which thick masses of greyish-white mucus, stiff and difficult to remove, lie on the surface of the mucous membrane, often hiding the worms from view. By degrees, in long-continued cases, the inflammation ends in the formation of cicatrical tissue and thickening of the walls of the gut. The inflamed and altered intestine must be changed both as regards the condition of its secretion and as regards its powers of absorption. It is apparent, therefore, that besides the local presence of the worms there is an organic change in the intestine which may, if extensive, affect the absorption of food-stuffs, and which, even if of no great extent, may lead to interference with the regular course of digestion and to the formation of irregular by-products. These if absorbed will certainly not have the same effect on tissues as healthy food, but will act on them in a toxic manner. In view of the conditions just described one will certainly hesitate to explain the epileptic fits produced by intestinal worms as due to mere reflex irritation.

There are one or two further points of interest in connexion with this subject. It is said, for instance, that threadworms are comparatively rarely found to be the cause of epilepsy. This may be because they escape observation. Not very long ago there was under my care a little girl, aged eight years, who had minor seizures in a strong degree. Inspection of the stools revealed no worms for a week, although the bowels were quite freely moved every day. At the end of a week, however, a good number of threadworms were discovered in the dejecta and the association of the parasites with the seizures was thus established. The worms are therefore apt under some circumstances to escape the notice of even a trained nurse, and much more of an unobservant mother, for a considerable period; or they may be voided per anum, not continuously "with every stool," but at intervals which extend to several days. These are points worth considering when one bears in mind the somewhat severe changes which worms are apt to produce in the intestine and the great frequency with which they are associated with epilepsy. Again, epilepsy produced by worms may be unilateral in distribution, the convulsions not only commencing on one side of the body but remaining limited to that side throughout the whole course of the seizure. The same point may be observed in certain cases of epilepsy produced by overloading of the intestines, of which I shall presently give an instance. The fact is generally recognised that epilepsy caused by intestinal worms is difficult to cure even when the parasites are completely removed by proper anthelmintic treatment. There is, of course, the fallacy which has just been illustrated of the continued presence of threadworms without their being passed or recognised in the fæces, and one may be easily misled into the idea that the parasites have been successfully removed. But even when the intruders have been really got rid of the seizures are apt to continue from a persistence of a morbid condition of the intestinal mucosa which is associated with their presence. There is another reason for the continuation of the seizures—namely, the morbid habit of the nerve-centres, which once acquired is only to be overcome by prolonged treatment, but this point applies to all epilepsies whatever may be their immediate and remote causes.

There are, however, disorders of the gastro-intestinal tract, particularly of the intestine as distinguished from the stomach, other than those set up by worms, which are very frequently both the predisposing and the direct causes of epilepsy. Both in children and in adults instances of the disease meet us for which we fail to find a satisfactory explanation as to either the predisposing factor or the exciting cause. In adult males, in whom these causes are far from infrequent, there is strong evidence to show that chronic alcoholism, even when unaccompaned by kidney disease, is the predisposing factor, whilst the discharge may be produced by an extra dose of the alcoholic poison. In other cases where drink can be excluded I think strongly that the reason for the epilepsy must be sought for, and would be found in the digestive tract. Unsuitable ingesta which act as poison, like alcohol, may be the provokers, and it is by no means necessary that they should in every instance be such well-recognised toxic agents as alcohol is. In young adolescents and particularly in children it would appear that an excessive meat diet is quite capable of putting the nervous system into what may be called the state of epileptic tension. In other patients there is catarrh of the intestine which, when it fails to attract by any marked signs the attention of the sufferer himself or of the mother, is not complained of and requires skilful questioning to be revealed. Beyond such patients whose appearance does not help us in forming a conclusion as to the cause of the epilepsy, there are, however, those of another class who bear marks of their gastro-intestinal disorder which, though plain enough when attention is directed to them, are nevertheless not infrequently overlooked. I have spoken before when dealing with chorea of the frequency of certain facial signs, such as a dull muddy complexion and furred tongue, as indicating an habitual toxæmia arising from the bowels. It is quite remarkable how often we are confronted with this complex of signs in patients whose complaint is about their epileptic fits; indeed, this state of affairs is so frequent that I have often wondered that no greater stress is laid upon the conjunction. The appearances in question may be briefly described here, since they were only touched upon under the heading of chorea. In pronounced instances the complexion is muddy, the eyes and expression are dull, and dark rings may be found round the orbits. There is a tendency to erythematous, patchy flushing of the skin of the face, neck, and chest. The small vessels on the cheeks are dilated and form vascular stigmata, such as are seen in chronic alcoholic patients and others in whom the degeneration of the blood-vessels is commencing. Often there is a tendency to acne and comedones, when the skin is often greasy-looking and secretes an excess of sebaceous material, especially about the nose. The tongue is usually coated or furred in a greater or smaller degree and the patient suffers from a bad taste, particularly in the morning. The breath frequently has a disagreeable acrid odour which at times may be very offensive—a condition which is in no way connected with any local process in the mouth. Such sufferers are often big and stout and frequently present a coarse appearance, due largely to the acne and seborrhœa. In many of them the appetite is great and even voracious. They are usually constipated, though the history of constipation is often difficult to elicit from them, for it seems as though a moderate degree of constipation becomes so much a part of a patient's life that it no longer presents itself as anything abnormal. The bowels are frequently asserted to be "quite regular" when, as a fact, they are moved every second or third day only; and it is necessary for the physician to assure himself of the physical state of the dejecta before he is justified in accepting the statement of the patient or that of the patient's mother, that there is nothing the matter with the bowels. Particularly I would lay stress on the misleading fact of the bowels being opened twice or three times a day. This generally means not that the stools are loose or copious, but that each evacuation is small, hard, and scanty, so that at each motion only a small portion of the fæcal matter lying in the sigmoid and rectum is removed, and that the true state consequently is one of constipation. On the other hand, it must not be forgotten that true diarrhœa may exist with such a disorder of the intestine and with those facial signs that I have just described. Diarrhœa, however, in my experience is very rare as compared with constipation.

In all probability the constipated condition predisposes to epilepsy by leading to a toxæmia, and not by reflex irritation. For in the first place we have the facial signs and the condition of the tongue pointing to toxæmia, and in the second place it strikes me that one very rarely encounters epilepsy when there is a mere overloading of the stomach, a condition which nevertheless has a strong tendency to set up reflex action. I am not aware of any case in which an overcharged stomach, while the food is still in that viscus, has given rise to an epileptic seizure; and in those cases in which an indigestible meal is blamed, and justly blamed, for the attack the latter does not usually occur until at least 12 hours after the meal in question, and we know that in children in such cases an enema will often remove pieces of undigested food from the rectum. Now, from the stomach comparatively little, if any, absorption takes place, and the facts just mentioned appear to bear out the suggestion that it is only when the absorption of products of such an indigestible meal is commenced that the fits occur. This of course applies to the exciting cause of the seizure; the predisposing cause is, however, much more important and is *a fortiori* more probably a toxæmia than a state of reflex irritation.

The foundation of digestive disturbances which ultimately become complicated with epilepsy is very commonly laid at school. Thus I have seen many cases of epilepsy in young women who gave a distinct history of severe indigestion commencing while they were at boarding-schools and who never entirely recovered from their indigestion. These patients all showed in addition to their dyspeptic symptoms some evidences of auto-intoxication and with hardly an exception admitted suffering from constipation.

It is to me a remarkable fact that epilepsy is but rarely combined with anæmia. Thus out of 32 cases of women and children in whom epilepsy was connected with marked signs of digestive disorders one only showed anæmia to a degree which was recognisable by the pallor of the conjunctiva and I have not seen a single instance of epilepsy associated with typical chlorosis. When we remember how constantly chlorosis and other anæmias are combined with, and probably are due to irregular digestion and constipation, this exemption of chlorotics is certainly notable and is in want of a plausible explanation. It may of course be that the particular toxic substances which lead to anæmia are without influence on the nervous system and that, *vice versâ*, those that have a profound effect upon the latter leave the blood-forming tissues unaffected, and until we are enabled to isolate or to discriminate by their toxic effects between the several deleterious bodies which are in different circumstances produced in the alimentary canal, this is the only explanation which I can suggest.

There is nothing special in the form which the epileptic attacks assume when they are due to gastro-intestinal intoxication. Major and minor attacks occur with equal frequency and epilepsia larvata is not uncommon; it may even occur that the convulsions so produced are confined to one side of the body after the type of Jacksonian epilepsy. Thus I have seen an infant who on two successive occasions was brought to hospital suffering from marked unilateral convulsions limited to one side. On each occasion grossly unsuitable food proved to be the cause of the seizures, and undigested masses were removed by enema from the rectum. Watching this child in its convulsions one would certainly have said that they were due to coarse brain disease, and although I have never seen another case so clear in character, this one seems worth noting, since instances of this kind are probably not alogether exceptional and are apt to mislead one as to the cause of the fit. The time at which the seizures take place is not characteristic in gastro-intestinal epilepsies, for the fits appear with about equal frequency in the day and in the night, and in several cases I have noted that that they take place in the early morning, either while the patient is still in bed or during the process of dressing. It is noteworthy that in a considerable proportion of the gastro-intestinal cases no evidence of any hereditary tendency can be obtained.

I trust that I have made it clear that a great proportion of the epilepsies met with in everyday practice are the result of chronic toxæmia arising from the alimentary tract, and that this same auto-intoxication is the true factor in several other conditions which are universally recognised as predisposing causes of epilepsy—as, e.g., intestinal worms and rickets. It is necessary to emphasise the predisposing as contrasted with the exciting cause to which the first or any subsequent fit is attributed. It is not possible to classify the causes of epilepsy into two distinct groups—predisposing and exciting—without straining the facts, but in any individual case of the disease we can discern these two factors and the predisposing cause remains the same, whereas the immediate excitants of the fits may vary, and will be, now fatigue, then excitement, or again injury or pain.

Pathology.—The diseases under consideration have, then, the following etiological points in common. They are produced by a group of emotional causes and, on the other hand, by a group of toxic causes, together with each of which hereditary predisposition has an important influence. The toxæmic element is more effective than the emotional in all these maladies excepting saltatory spasm. The further remarks which I have to make on the pathology of these disorders shall be limited to the subject of self-intoxication from the alimentary canal, which has been shown to be a factor of first importance.

We may conveniently divide the gastro-intestinal disorders which lead to toxæmia as follows:—

1. *Excessive amount of food.*—Over-eating has a great effect in setting up disorder of the alimentary canal. The habit is a common one among the children of the lower classes, but it is by no means confined to them. We may explain its action as follows. Normally the glands which produce the digestive juices secrete them in quantities which are capable of dealing with a certain volume of food. Habitual excess of food or too frequent meals will no doubt stimulate the glands to yield a proportionate increase of their secretion for the time being, but such an over-strain, if long continued, is apt to end in glandular inadequacy and consequent incomplete digestion. The incomplete digestive products may be absorbed; or in the absence of a sufficient amount of the digestive fluids bacterial decomposition of the intestinal contents takes place, and the products of the same are taken up by the blood-vessels and lacteals.

2. *Unsuitable food.*—Food unsuitable either to the age of the patient or to his individual digestive capacity is likewise often the cause of those gastro-intestinal conditions which are found associated with the neuroses, and very frequently such dietary errors signalise themselves by producing the facial appearances which have been described. Reference has already been made to the fact that an excess of meat food—and probably the same would hold good of excess of any other proteid material—is apt to be associated both with dreaming, enuresis nocturna, and epilepsy, and I think that when a fault is discovered in the nature of the food it is the proteid constituents which are usually to blame.

3. *A catarrhal condition of the stomach or of the small intestine.*—This may arise from various causes, as, for example, dietary errors, intestinal worms, or infective diseases. This condition may be accompanied by diarrhœa, or, more commonly by constipation. In speaking of the local effect of intestinal worms I have already detailed the manner in which such catarrhs act and how they may long outlast their original cause.

4. *Constipation.*—Constipation, arising from catarrh of the intestine or faulty diet or from mere habit and encouraged by neglect is undoubtedly one of the most common predisposing causes of all the neuroses here considered, and its effect is produced partly by the delayed elimination of fæcial matter which, therefore, has a chance of being reabsorbed by the intestine, and partly by the encouragement which it is shown that bacterial growth within the intestine receives when the fæces are retained. In the absence of a verbal admission by the patient of any of these digestive disorders we may observe the signs which have been fully described and the significance of which as an index of auto-intoxication has been pointed out, or we may find indicanuria. Indican is derived from indol, which latter is formed in the intestine by the bacterial decomposition of albuminous substances. A very little indican is commonly present even in the urines of healthy persons, but a considerable excess of the same, such as I show you in these specimens, is always accompanied by disturbed general health. We may, therefore, say that excess of indican in the urine is always associated with toxæmia, and this toxæmia arises (with rare exceptions, in which the source is decomposing pus) from the intestinal canal. Indol itself may possibly be toxic, in view of its origin through bacterial action, and of the fact that it is unlikely to be a nutrient substance, for all the familiar organic food stuffs contain oxygen, and indol is deficient in this element. Indol is formed from the nitrogenous food stuffs and is, so far, the only decomposition product of intestinal origin which we have the means of detecting in the urine. But it is quite probable that analogous products are formed from both carbohydrate and fatty articles of diet under

the influence of constipation or of intestinal catarrh. If this be so we ought to meet with bodies of the constitution of the alcohols and of the fatty acids, but I am not aware that any such have been with certainty detected in the urine, and it is possible that they undergo such changes before they are finally excreted with that fluid as to be no longer recognisable, or that they are completely oxidised in the blood and excreted from the lungs.

Excepting the sign of indicanuria we have no chemical test which proves that auto-intoxication from the alimentary canal is in progress. There is, to be sure, the fact, first described in detail by Bouchard, of the toxic action of the urine, and we might expect to find in the case of self-intoxications special results following the injection of such a patient's urine into the blood of an animal. But so far as I am aware the poisonous effects of the urine of healthy persons have hitherto proved to be identical in nature with those obtained with urine from patients suffering from blood-poisoning, though less in degree, and the only exception to this rule appears to occur when the urines of certain infective diseases—e.g., pneumonia—are employed. This physiological test would, however, not be applicable to the bedside, even if it should in the end prove useful in detecting special poisons in special gastro intestinal disorders. A point to which I have previously drawn attention is the prominence of the toxæmic symptoms of malaise, languor, and sometimes vertigo, in the early morning, and in this connexion it is highly interesting to note one result of Bouchard's experiments—viz., that the urine secreted during the night is, though more concentrated, materially less toxic than that eliminated during the hours of mental and bodily activity.

TREATMENT.

In view of so many common points in the production of these neuroses their treatment must possess certain common features which shall first be dealt with.

From the stress which has been laid upon disorders of digestion and faulty diet as a cause of nearly all these diseases it follows that correction of dietary errors is one of the main points requiring attention. In the majority of cases in which the feeding is at fault it is advisable to cut down the amount of meat which the child consumes. Meat once a day will nearly always be sufficient, and that once should be at dinner-time in the middle of the day while there are still some hours of muscular activity before the child. It is seldom necessary or advisable to remove meat altogether from the dietary, for it is nearly always an excessive quantity of meat which leads to the trouble, not meat in a small or moderate amount. So long as the meat is good there is, I believe, not much difference between beef, mutton, rabbit, fowl, game, &c., but fish may with advantage be substituted for butcher's meat. Light puddings and green vegetables may be given and potatoes in moderation. In fact, it is not so much a question of prohibiting any article of diet as regulating the amount. In many children the entire bulk of food requires reducing. In severe cases of enuresis it is sometimes (as in the case which I have quoted) advisable to stop meat altogether for a period and then to allow it again in a very small quantity. Sufficient mastication and moderate rest after meals should be insisted on, as they greatly help digestion, and the child should not leave the house after breakfast until the bowels have been opened.

It is plain, also, that in most cases the action of the bowels demands attention, since the prevention of an auto-intoxication from the intestine depends firstly on regular and sufficient defæcation. As cathartics the saline purgatives are invaluable, at all events to begin the treatment with, and since it is advisable not to give drugs more often than necessary they are best administered in the shape of a single dose of mixed sulphates of soda and magnesia one hour before breakfast, or in a smaller dose last thing at night. Any of the natural aperient waters may be substituted for this mixture. Calomel (or calomel combined with a small quantity of colocynth and rhubarb) is also extremely valuable in this class of cases. Senna, aloes, and other drugs which act mainly on the lower intestine, are less indicated, for it appears that the groups of aperients first named act largely by stimulating the flow of bile and by thus helping the liver to eliminate whatever toxic materials it has removed from the portal blood stream. Whichever drug be given the object to be attained is one large stool, of porridge-like consistency, to be passed preferably before or shortly after breakfast. Again, we want to convert habitual irregularity of the bowels into habitual regularity, and to this end it is necessary to give, not an occasional purge when the bowels have been obstinate for a day or two, but a regular course of this daily treatment, extending over three or four weeks, to be followed by a gradual diminution of the dose, administered first on alternate days, then at longer intervals. This, combined with the dietary measures prescribed, will usually be followed by complete success in children, and any excess of indican, if present at the onset, usually disappears under these therapeutic measures, but sometimes it continues to be present in considerable quantity, showing that in spite of the purgation an excess of microbial products is absorbed. In such cases the so-called intestinal antiseptics naturally suggest themselves, the chief of which are sulpho-carbolate of soda, salol, phenol, mercurial salts, charcoal, and possibly arsenic. All these, excepting phenol and arsenic, I have tried, and though each has proved useful I cannot say that any one of them can be relied upon to remove the trouble entirely and in all cases. Those which have in my hands proved the most successful are sulpho-carbolate of soda and charcoal. The first is, however, very apt to give rise to headache, and must therefore be carefully watched, and on the whole I give the preference to vegetable charcoal given in 30 grain doses twice daily. Perchloride of mercury, the most powerful of antiseptics, has not in my experience had the desired effect—at least, in such doses as I have cared to give to children. Arsenic in comparatively large doses I have not yet tested in this connection.

Tonics may be of use in certain of these neurotic conditions where there is enfeebled general health due to previous disease, but their utility is far less than that of the remedies which act upon the intestines. They do, however, improve the appetite and probably hasten the general metabolism, and they may therefore be usefully combined with the intestinal drugs. Their employment alone, however, is to be deprecated where there is any active auto-intoxication, for in such cases they do not strike at the root of the trouble and only delay improvement by deferring the employment of the proper remedies.

In conjunction with the measures which I have mentioned above to be applied in all those cases in which self-intoxication is the main cause, each one of the neuroses requires some special treatment.

Chorea.—Besides seclusion, darkness, and quiet, undoubtedly the most effective treatment is that by arsenic in doses of about 15 minims of Fowler's solution twice or three times daily, as advised by Dr. Murray. The success of this method is quite another thing than that attained with arsenic in small doses, and is much more quickly gained. Some evidences of poisoning are apt to arise under this medication, notably nausea and vomiting, and when these occur the best thing is to diminish the dose, not to stop the drug.

Enuresis nocturna.—This may be successfully treated, as a rule, by giving bromide of potassium, with either tincture of belladonna or of hyoscyamus, as a nightly dose. It is, moreover, well to administer some alkali, such as citrate of potash, in order to diminish the acidity of the urine, which excessive acid reaction is itself of irritating effect. Of course, should bacteriuria be present it is necessary to locate the cause of the same and to deal with it.

Migraine.—Attacks of migraine which depend upon auto-intoxication may, I believe, be successfully cut short by the administration of a smart emetic, and I have known several adults who have asserted that this course more certainly relieved the attack than any other. Of course, antipyrin sometimes succeeds in these cases, but by no means always. It is not clear how emetics produce their effect, but it may be that some of the toxic material is excreted from the blood by the gastric mucous membrane and re-absorbed, in which case an emetic will remove it. On the other hand, it is possible that the act of vomiting stops the headache by the violent stimulus which it affords to the nervous system. I do not think that emetics are ever useful in those migrainous attacks which result from prolonged overwork of the body or mind.

Tetany.—For the spasm of tetany the bromides, so far as my experience goes, are by far the most efficient remedies when employed together with the proper treatment for the catarrh of the respiratory or intestinal tracts. Galvanisation is recommended, but I have never had occasion to employ this measure, and I cannot help thinking that in most cases it is unnecessary. Quiet and darkness are strong aids to the successful treatment of this affection.

Dreaming and nightmare.—For these symptoms no treatment is required beyond that which deals with the primary cause.

Epilepsy.—Undoubtedly the best drugs to employ in epilepsy are the bromides. I am accustomed to give equal quantities of the potassium and ammonium bromide, the total dose to be determined by the result upon the seizures. This combination tends, I think, to resist the depression which is apt to ensue when the potassium bromide alone is used for long, and for long these drugs must be administered if any permanent good is to be done. They probably act directly upon the cerebral centres. As I had occasion to point out before, epileptic seizures are very apt to continue even when the predisposing cause has apparently been removed, and their continuance is no doubt due to the fact that a morbid habit of action is acquired by the nerve-structures concerned in the convulsive discharge, a habit which is favoured by every seizure. Taken in hand early and treated with perseverance epilepsy is by no means so hopeless a malady in children as one might be led to believe by seeing it in the adult chronic epileptic. Should intestinal worms appear as the cause of this disease, and the proper anthelmintic remedies be administered with apparent success, one must nevertheless bear in mind the obstinacy of these parasites, and the fact that they are generally present in numbers. A child can certainly not be regarded as being free from the intruders until the stool has been repeatedly found clear of the ova, and in the case of tapeworms the head must be found. For oxyuris vermicularis I am in the habit of prescribing infusion of quassia internally, coupled with mild purgatives. For tænia male fern is the most successful drug, providing it be given when the intestines are empty through fasting and that it be helped by a cathartic remedy; but whichever parasite it may be the altered condition of the intestinal mucous membrane will have to be remembered, and this condition will require careful dieting, and possibly saline purgatives, to be continued over a considerable period of time.

THE CRISES OF DEVELOPMENT.

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WHEN Guy Mannering, an involuntary guest at Ellangowan, calculated, in a spirit of mock solemnity, the nativity of the newborn heir to that estate, he was startled to find as the result of his observations that three periods of life would be particularly hazardous to the native—his *fifth*, his *tenth*, his *twenty-first* year. The reason of his surprise and perturbation of spirit was the remembrance that on a previous occasion he had been forced to predict, in the case of a young lady, a similarly threatening epoch, and the discovery, from a comparison of dates, that the same month and day of the month seemed assigned as the period of peril to both.

The coincidence may serve to remind us how frequent were these predictions of threatening periods in the lives of those whose horoscopes were cast and nativities calculated by the devout professors of the science of astrology. Fairy lore, too, illustrates the point; for how often do we find, when the malevolent fairy who through incomprehensible oversight has not been invited to the christening, has cast her baleful spell upon the infant princess, that the assembled good fairies, whose invitation cards were all right, have announced that if only some particular year can be safely passed, the spell will have no further power for harm.

The predictions of mystery-mongers and dabblers in magic, with a view perhaps to a general safe-guarding, not infrequently seem to be based to some extent on an elementary observation of natural events. May we find in the shape of these fairy legends and astrological calculations some reflection of the facts of the actual critical periods of human life in its progress towards maturity, and the especial dangers of these periods to some of the starters in Life's Handicap? May we not too seem to discern in them an appreciation of the fact that on reaching adult age man is comparatively safe, that many of the influences which previously had power to work him harm, and against which constant vigilance had to be employed, have then lost either entirely or to a great extent the malignant capabilities they before possessed?

Truly the progress of the human animal from that impregnated ovum which is its first shape up to maturity is so marvellous, so complicated a process, that it is no wonder if it be not accomplished throughout entirely by steady and unmarked gradations. Immature man or woman passes through various stages before ceasing to be immature, and it is at the periods of more or less abrupt transition from one of these stages to the next that adverse influences have most power for harm.

The first stage in the life of man he passes "folded in the womb," not, consciously, disturbed by any "hints or echoes of the world." As the quaint-minded author of *Religio Medici* says, "We live, move, have a being, and are subject to the actions of the elements, and the malice of diseases, in that other world, the truest microcosm, the womb of our mother." In this microcosm, however, we are on the whole in a very safe haven. Diseases that affect the mother do indeed affect in varying degrees the child within her, and an immoderate indulgence by the mother in alcohol at this period may create in the offspring a proclivity to chorea and epilepsy during childhood, to hysteria and insanity later. But attention to the simple laws of hygiene on the part of the parent will ensure that, unless for the purest accidents, this stage of life shall be passed through in safety, and, a healthy origin being assumed, the vast changes it witnesses in the embryo be unerringly accomplished.

This phase is, however, closed abruptly by birth—birth, with what manifold dangers and risks. No journey of a later age surely will be more full of peril to life and limb than this first eviction into the light of day. If it is too early undertaken, will the unready infant contrive to adapt himself to the new environment? A three months' mistake is fatal, a two months' prejudicial. If the actual transit be unduly prolonged, idiocy and spastic paralysis may be the ultimate state to which the newcomer shall attain. How much may depend on the maternal efforts being properly aided and abetted by the craft and subtility of the midwife or doctor. Even so small a matter as the ligature of the umbilical cord has its influence: an undue haste, whereby it is severed ere yet the flatness and emptiness of the umbilical vein show that into the infant has passed all that is rightly his of blood, means a set-back, slight indeed, yet having to be compensated.

The journey, over there is first of all the necessarily difficult process of suddenly putting into action an elaborate machinery which has been slowly developing and which, with no previous trial, is now called on at once to discharge its function perfectly. Into the harbour from which we first emerge we can never put back for repairs. There is, moreover, the adoption of an entirely new system of nutrition, and there is the striking modification of the circulatory apparatus demanded in connection with these other changes. Many more disturbances must be brought about by the sudden emergence from a very "island valley of Avilion" into a world where "Rough winds do shake the darting buds of May." The seasons of the year have power at this crisis for good or for evil, inasmuch as it is stated "that the viability of the infants born in the winter and spring months is greater than that of those who come into the world in summer or autumn," February and September being indicated as the months of greatest vitality. In parentheses may I suggest that in an age when the doctrines of a Schenck are not only seriously discussed but have been allowed to rule conduct it were not too much to hope that the diffusion of this item of knowledge might perhaps increase the proportion of infants who first see the light in one or other of these benevolent months.

A less abrupt transition from one stage to another and a correspondingly less dangerous period is the next crisis of life. It is that when, in the natural order of things, weaning must take place, when the dogged cling of the infant to the bosom of the mother from whose womb it has been dislodged has to be terminated. The change is marked by the appearance of those organs which render it naturally possible—by the first dentition. The dangers of this period have been at one time over-estimated and at another too little regarded: some have seen in teething a frequent cause of serious disease, and to this theory the vulgar have added the corollary that, such diseases being due to a natural and inevitable process, it is useless to attempt to fight against them. Others have said that teething, being a physiological process, cannot cause disease, and have therefore paid no attention to its presence along with disease. The truth is that, not dangerous in itself, dentition is one of those critical periods of life when evil influences have full sway. At this period of great physiological activity, and therefore great phsysiological stress, there is exceptional susceptibility to the ordinary causes of disease. The inflammatory condition of the gums so often induced by the eruption of the teeth gives rise to a condition of pyrexia which, of itself, makes the bad effect of chills and of unsuitable food more marked and more likely to lead to actual disease. The better the original constitution of the child, the easier the process of its birth, the more healthy and well-conducted its stage of early infancy, the less likely will it be that teething shall cause such disturbance as to make it fall a victim to disease. But that the period is one when the stress of internal politics diminishes the forces available for resisting attack by a foreign foe is a fact in the life-history of man.

Puberty is the next great crisis in the history of the human organism. It marks the sudden beginning of the development of function in the sexual organs, a development which occupies strikingly different lengths of time in the male and the female, though marked in both by obvious physiological changes. The onset may be said to be acute and the process brief in the female, while in the male a more gradual onset is associated with a much longer period of development. When the sexual function has attained to full perfection, the period of growth in the body is over and the healthy adult of 25 may congratulate himself on having arrived at an age beyond which the enemies of health have their power for harm enormously curtailed.

Birth, dentition, puberty are as difficult passes from one tract of mountainous country to another: the intervening stages, though less abrupt have their difficulties and dangers too when compared with the straightforwardness of the subsequent progress along the ridge of adult life. Birth marks the end of intra-uterine life as it does the beginning of infancy; dentition leads into the state of childhood: puberty with its very obvious physiological changes indicates the passage from childhood to adolescence. A minor crisis during the stage of childhood, dividing it into "early" and "late" is the seven year old period. No really obvious physiological change marks it, though the commencement of the second dentition nearly coincides, while it may be remembered that at this age the brain has already attained about 90 per cent. of its maximum weight, so that the date marks a very important change in the rate of growth of cerebral tissue. It is frequently distinguished by obvious disturbances in the mental attitude of the child to its surroundings.

While the whole developmental period including intra-uterine life, infancy, childhood and adolescence is a period of special danger when compared with the state of adult man, the dangers which threaten it are special not so much in themselves as in their results. Practically all the influences which menace health in the adult, all the ordinary causes of disease may menace it too before maturity is reached. But until then they have the special opportunity of being able by their incidence to delay, to stop, or to prevent development. And these effects may be upon the whole organism, the body generally, or upon separate systems or organs. It is these facts which make the study of disease in childhood a special branch in the study of the theory of disease, as considerations of convenience make it a special department in practice.

Errors of diet, extremes of cold and heat, parasitic forms of life, and the rest, all attack the developing organism, and with the greater success that the resistive powers of the tissues are not perfected till maturity. The special liability of the mucous tracts to inflamation in infancy, the frequency of disorders of the skin at the same age, the ready yielding of the lymphatic tissues to specific and general causes of disease in childhood, all afford instances of this. But of all the systems of the body that which most frequently comes to harm in the process of development is the nervous, and of all the causes of nervous disease that which more particularly affects the immatured organism is the complex of unknown or little understood forces which we group under the name, heredity. The heredity of the impregnated ovum is the developmental impulse it receives from the union of the sperm and germ cells. A good heredity expresses a developmental influence sufficiently powerful to ensure the organism under average conditions reaching perfect maturity. A bad heredity expresses a developmental impulse too weak to energise the ovum to the perfection of development under average conditions: it is rather the defection of a power for good than an active evil influence. The amount of defect of developmental impulse and the consequent final falling away from perfect maturity vary in every degree. By perfect maturity is meant the absolute soundness of every organ and tissue structurally and functionally: different organs and tissues reach this structural and functional perfection at different epochs. The maturity of the whole organism is reached when the latest of the tissues, the reproductive and the higher nerve-centres, have reached the full perfection of their powers Growth of tissue precedes development of function, so that the organism is apparently structurally perfect before real maturity is attained. The effects of a bad heredity on the nervous system are seen during the whole period of development but take special forms at different stages, and are particularly manifested at its marked crises. The trophic, motor, or sensory functions may be involved together or separately, and the mental functions in every degree may be affected.

The trophic functions of the brain are early developed, as is obvious when we consider the rate of growth of the new-born infant. The more vicious, the more profound are hereditary defect, the earlier in the development of the offspring will its effects be shown. Interference with proper trophic development is found in such congenital abnormalities as hare-lip, cleft palate, spina bifida, the deformed palate so often observed in neurotic and idiotic children, microcephaly and congenital idiocy generally. These are instances of the effect of a markedly bad heredity in impairing the earliest trophic functions of the nervous system.

A bad heredity of slightly less degree may show its effects at the first dentition or onwards from then till the 7 year old period, the point up to which the brain increases so rapidly in bulk. Motor convulsions, difficulty in acquiring the power of speech, occupation of the meninges by tubercle, night-terrors and some varieties of idiocy may serve as instances of hereditary taint sufficiently marked to act at this period of life. In the latter half of childhood, chorea, epilepsy, migraine, somnambulism, asthma, are evidences of instability of nervous tissue resulting from a bad heredity.

Puberty and adolescence, early and late, are periods when it frequently first becomes manifest that a bad heredity is to prevent the nervous system attaining to the perfect and stable development of its highest functions. Epilepsy and hysteria, Friedreich's disease, uncontrollable temper and actual insanity are associated with this period. Of 1,706 non-congenital admissions to the Royal Edinburgh Asylum, 230 were between 14 and 25, and of the 230, 157 cases were in the 21st to the 25th year. In this break down of the nervous system is seen the working of a bad heredity at the last moment to prevent the development of a sound nervous system capable of the exercise of the highest powers. It is the perfection of faculty that is not to be attained. It is the strain of co-ordinating the fully developed powers and functions of the several parts of the organism, it is the acquirement of inhibitory power, the special work of the highest centres, that is beyond the possibilities of the organism, though it has been able to develope successfully up to this pitch. Not, therefore, till the very end of organic development can we declare that the danger of a neurotic inheritance has passed away, not till then do the powers of evil, that hovered about the cradle of the babe to claim it for their own, see themselves baffled and disappear into outer darkness.

For a bad heredity is not an inevitable source of disaster. That it is so is apparently the creed of the Ibsenite dramatist and of the ladies who write novels of portentous length on a very slender basis of ill-apprehended physiological and pathological theories. The net results of a bad heredity are not irrevocably pre-determined on impregnation. The medical man, whose business it is to see life clearly and to see it whole, who spends a large portion of his time in efforts at compensating the defects of a bad heredity, recognises that while heredity is a factor, and the most powerful factor, in determining the course of development, it is but one of several factors whose product constitutes the total quantitative and qualitative impulsive force towards maturity. All other factors than heredity may perhaps be included in the general environment. If an impregnated ovum with perfect potentiality of development does not in any case reach perfect maturity it must be from the effects of environment. We know that it does not in every case do so. Even the snug environment of the womb, evolved though it has been for the special purpose of ensuring the success of the first stage of the development, is not absolutely secure. Accident or maternal disease may so damage the embryo as to prevent its development so that the child is born with a defect which, though congenital, is not hereditary. Little indeed is known of the real causes of intra-uterine embryonic defects, but it is safe to assert so much. Transfer to the environment of terrestrial existence introduces a most complex set of influencing forces. Under average conditions, the healthy child continues to flourish, but if unfavourable conditions supervene, development may be stayed, delayed, or perverted at any stage up to finality For a concrete instance, let me direct your minds to a case of idiotcy due to sunstroke, or a case of cirrhosis of liver from the administration of alcohol to an infant. You see that for cases of arrested or perverted development in previously perfectly healthy children I have to invoke distinctly violent stresses of environment. And this serves to emphasise the much greater proclivity to disaster of development in the children who are not potentially perfectly healthy, who have, in fact, a bad heredity; in such a one, so comparatively slight a stress of environment as late hours, or the strain of a school examination, may bring about neurotic disorders of development which, if the environment be not amended, may lead to permanent incapacity.

And herein is seen our sole means of combating an evil heredity. If an organism of such a character breaks down under an environment so slightly disadvantageous that a perfectly endowed organism would suffer no damage from it, it is obvious that the only chance of bringing it through is to create for it a special environment from which, as far as possible, the sources of danger are absent. As the factor, heredity, diminishes in its contributive power to maturity, so must the factor environment increase its favouring influence. It is obvious that there may be an insufficiency; the environment cannot always be improved to a sufficient degree to counteract the failure of the hereditary forces. It may, however, make that failure less complete. In the very worst cases, below a certain degree of defect of developmental impulse, not even this can be hoped for, the only consolation there is that then the taint tends to die out, the hopelessly damaged organism not being able to attain reproductive power. In fact, it is not the very worst cases which interest us: we strive with them, on principle and for practice, and sometimes we mitigate them, and avert a fatal issue, so that a crippled being is left to crawl about the earth, a man surely not in the image of his maker. Repellent even to the æsthetic eye in himself, he yet serves as a reminder that the same proportion of success which has sufficed to keep him here at all, in many and many a less malignant case has been competent to bring out a man, not noticeably stunted, from a struggle which threatened thorough wrecking. In the less severe cases then of a bad heredity, we may hope by care in the matter of environment to minimise its effects.

Of the more obvious results of a bad heredity may be mentioned failure of the tissues to resist tubercle, various forms of unsoundness of nerve-tissue, showing as epilepsy, hysteria, insanity and many neuroses, with Friedreich's disease, and pseudo-hypertrophic paralysis, hæmophilia, actual syphilitic taint and gout.

Of changes of environment, which may be used in the fight against heredity, two classes may perhaps be distinguished, general and special. The former includes general hygienic measures, maternal hygiene for intra-uterine life, appropriate diet for the several later stages of development, clothing, access of sunlight, recreative exercise, regulation of the hours of sleep and of study. Special changes of environment are designed to meet the requirements of particular cases, and can therefore only be prescribed when we are able to anticipate the form of perversion of development in any case, or have some idea of the morbid process which is taking place. The administration of drugs, the prescription of special local exercises, the ordering of complete rest for a part of the body will serve as illustrations.

By constant watchfulness only can we discover what modifications of environment are necessary in any particular case to make up for imperfect potentiality of mature development under average environment.

The reminiscence of Scott which suggested these perhaps somewhat trite reflections bears in its train another idea. In the day of Guy Mannering astrology was shorn of its ancient glories, and practised only for amusement, or by a very few believers in secret. But time was when the astrologer was the trusted counsellor of the rulers of empires and an object of awe and veneration alike to the mighty and the humble. Oracles, augurs, astrologers, witches, have all at one time or another been the guides and the prophets, not only of the ignorant, but of the educated of their day. And this influence they have owed to the characteristic common to them all, whether gazers upon the viscera of animals, or upon the path of the stars, whether they have devoted themselves to neurotic seizures in the temples of the gods or to the brewing of compound vegetable decoctions in insanitary cottages. Their methods have ever been, like the "birth" of Mr. Jeames de la Pluche, "wropt in mystery." Mystery is the explanation of their hold upon the populace which has never put faith in predictions devoid of this character. Prognostications avowedly based on scientific observation and scientific deduction are taken by the public for what they are worth: predictions based on an alleged mysterious *rapport* with an hypothetical unseen power are accepted by the vulgar at the valuation of their authors. The former are subjected to the hard test of comparison with events: the latter are articles of faith which it were blasphemy to confront with fact. The modern medical man has never claimed any mysterious attributes, he admits that all he does and can do is based on an observation of nature as scientific as time and circumstances will permit, and that all his powers are attainable by such as choose to give the necessary time and trouble to their acquirement. For this reason perhaps he has not greatly caught the public fancy in the capacity of vaticinator or sage. It is the phrenologist or the cheiromantist whose opinion as to what will become of and what should be done with its offspring it is that the public seeks. Yet this too is a phase that is passing away. Education, especially scientific education, must more and more be preparing the public mind to receive the deductions of science in place of the predictions of the mystery-mongers. In putting its whole trust in science the guild of medicine has not been, as Lord Salisbury might say, "putting its money on the wrong horse."

A sign of the times is the spread among the more educated of the people of the idea of Child-Study—the scientific observation of children. This appeals to various classes of the community—the observant teacher, who has noticed how very different children are, the conscientious parent, who wishes to understand how children get hold of the mysterious ideas which seem to rule their conduct, the professed psychologist, who comes in murmuring that ontogeny repeats phylogeny, and the physician who must study that which is brought to him to be mended when it is broken. These classes ask questions each of the others, and each perhaps, in defiance of the scientific spirit, is prone to think the answers of the others unsatisfactory. All perhaps but the physician approach the subject purely from the point of view of mind: the connection of body and mind, and the dependence of a healthy mind on a healthy organ of mind is however early borne in upon them. Consequently there is developed the habit of appealing for the explanation of mental phenomena to him who hitherto has been looked upon as concerned only with the body, and with the grossest cases of mental aberration—the physician. In a gradually enlarging field it may be his advice will be sought until he find himself called in, not, as now, only when some coarse physical disease like Scarlet Fever supervenes, but to interpret changes of disposition, variations of temper, abnormalities of attention, and elevated to the post of family soothsayer, with an invitation to predict the course of a child's development, and later to advise as to the time for setting it on a path in life and as to the nature of the path.

Do not understand me to mean that I think the mere formation here and there of child-study associations is to work such a change in that many headed monster—the multitude—as at once to bring about the extension in the relations of the family doctor to his clients which I have outlined. Child-study may retire again into the seclusion of the laboratory—few of those attracted by the title may be prepared to do more than take a very general interest in its broader results—not all at once will the untrained take to scientific methods. Rather, I regard the movement as a symptom of a vague feeling on the part of those responsible for the up-bringing of children, that there is something to learn about their development, and that it may by one or other course of conduct be influenced for good or evil. The impulse to personal study to which this feeling gives rise may die away with no more tangible result than the cherishing of the earliest efforts of Tommy, aet. 4, and Ellaline, aet. 5, to draw respectively a man and a moo-cow : but there may remain the impression that it is worth while to consult on the mental development of children one whose business it is to know all that affects health of body and mind. Even a little leaven leavens the whole lump, and the knowledge acquired by a few that some mental peculiarities, aberrations of temper, and so on, are not merely original sin but the results of bodily failure, may spread the custom I have indicated.

Is the medical man, as at present let loose by the licensing bodies, quite prepared to meet this comparatively new demand on his powers? It is not, of course, altogether a new thing. It has been said that the subject of mere bodily disease in children is not one which claims a very large share of the student's attention, and that he acquires skill and knowledge in the matter subsequently as the exigencies of practice force it under his notice. It is improbable therefore that he will have any very clear ideas on the subject of the normal mental development of children, and the effect of bodily conditions, prenatal and postnatal, on this development. That he should have accurate and extensive knowledge on the subject is not possible, as the whole study, like its object, is in its childhood. On the other hand no doubt there are many doctors who have a clear apprehension of the problem of healthy development, physical and mental, and are acquainted with the nature of the scientific work that is being done, especially perhaps in America, in the direction of its solution.

But it is essential that the whole body of the profession shall be more than abreast of any scientific movement which concerns itself with the health of the community and is attracting the attention of the laity. Therefore I venture to appeal to the student of to-day, the practitioner of the immediate future, to bear this subject in mind. God forbid that I should advocate the inclusion of another subject in the medical curriculum, which indeed in more than one of its professed studies, physiology, general and mental, insanity, hygiene, already approaches it. But in those first months or years of comparative leisure which succeed the hanging out of the brassplate upon the outward walls time might perchance be found to take up child-study. Such study resulting in the acquisition of more thorough grasp of the meaning of the developmental period of life, with its peculiar susceptibility to damage, not only throughout, but accentuated at special crises, would benefit the practitioner by throwing light on the after effects of the specific and other diseases in childhood. It would give greater precision and force to his directions as to the general hygiene of the growing child, hours of work, play, and sleep. It would assist him in the special modification of these for particular cases. It would be a guiding influence of all therapeutic measures adopted in cases where development was not proceeding normally. It would introduce some system into his estimation of the defects of backward children, would supply clues to the meaning of the behaviour of precocious and unsatisfactory children. It would, where previous personal or family history supplied facts, justify him in making predictions as to the future mental and physical development of particular children: it would thus give him opportunities of instituting preventive measures against developmental failure of body and mind.

All these things at the present time come within the scope of the medical man, and are an occasional part of his practice. I believe they will form an increasing part of practice, especially in the case of the neuroses and slighter mental disturbances. The careful study of the normal mental and physical development of the child with their correlations will give the profession much more authority and ability in dealing with questions as to the education and hygiene of children. Child-study is obtaining a hold upon the public, possibly as a fad: for the medical man, who has to be a physiologist before he can heal the sick body, a psychologist before he can "minister to a mind diseased," the study is a necessity.

A CASE OF EXTREME ANASARCA COMPLICATING PREGNANCY AND LABOUR.

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In obstetric practice few cases entail more anxiety than those in which the propriety of inducing premature labour has to be considered; the following case of Extreme Anasarca complicating the later months of pregnancy seems therefore worthy of record. The patient was not seen until both heart and kidneys were affected, so that it was impossible to more than surmise how far the œdema was primarily due to cardiac insufficiency.

The early history of the case is briefly as follows:—The patient, a primipara, æt. 32, had always enjoyed good health till she became pregnant; 22nd Nov., 1898, was the last day of the last menstruation; the early period of pregnancy was uneventful, except that there was no morning sickness. All went well till

April, the fifth month of the pregnancy, when the feet and legs commenced to swell; the condition gradually became worse; early in June, the lower limbs were so swollen as to make locomotion very difficult. About this time the general health began to suffer and she was troubled by loss of appetite and shortness of breath on exertion. She consulted her medical attendant, who gave her a diuretic mixture with some temporary benefit, but by the middle of July she was in a most distressed condition; the legs and thighs were enormously swollen and there was slight œdema of the lower part of the abdomen; the urine was very scanty, as little as 10 ozs. being passed in the twenty-four hours, and contained albumen. She also suffered from occasional complete loss of memory. Digitalis was added to the diuretic mixture with great benefit, the daily excretion of urine being quickly increased to 40 ozs. The general distress was, however, only slightly relieved and the question of inducing premature labour was discussed. It was decided not to be immediately necessary.

At the beginning of August, when I first saw her, she was in a pitiable condition. She was still able to get about, but only with great difficulty; she suffered severe pain in the legs and thighs, which were so swollen, while the skin was so coarse and dry that they suggested to the touch the trunks of trees. There was no appetite, and insomnia was a source of great trouble; there was breathlessness on exertion. The œdema by this time had involved the abdomen, so that it was impossible to palpate the uterine contents. There was great œdema of the labia, causing much pain and annoyance. The heart was dilated, its left border being just external to the nipple line, and there was a mitral systolic murmur. I advised the patient that unless her condition quickly improved, it might be necessary to induce labour. She grew rapidly worse, the œdema spreading further and further up the trunk; at this time, however, an average amount of urine was being passed daily. The patient strongly objected to the induction of labour, and fortunately the matter adjusted itself by labour commencing spontaneously on Sunday the 6th of August. On that day pains began at 11 a.m., and at 2.30 p.m. the os was sufficiently dilated to admit one finger.

By examination I ascertained that the presentation was a breech; the pains, however, then ceased, and there was no further progress during the day; although there was no sensation of pain during the following two days a process of silent labour went on, for on the next day the os admitted two fingers, and on the third day three fingers. During all this time the general condition was fairly satisfactory; on the fourth day there was a marked change; strong labour pains began at 5 a.m., at which hour the membranes ruptured. At 7 a.m. the os was half dilated; pains continued strong and frequent and were productive of much suffering. At 10 a.m. she showed marked signs of exhaustion, and as she also became somewhat cyanosed, I decided to terminate the labour as rapidly as possible. To relieve the suffering I administered chloroform, without which it was quite impossible to make a vaginal examination. The vulva and vagina were thoroughly disinfected by washing with carbolic soap and subsequent creoline douches. The labia were incised in two or three places with the result that a quantity of serous fluid rapidly drained away. The os was then two-thirds dilated and the breech was commencing to engage. I dilated the os with my hand and seized and pulled down a leg; after making gentle traction on it for a time, I passed up my hand and pulled down the other leg; I then rapidly delivered the trunk and head, having first pulled down both the arms; the child was born at 12.10 p.m.; it was in a condition of white asphyxia; I therefore immediately ligatured and cut the cord and placed the child in a hot bath; after it had been half a minute in the bath artificial respiration according to Schultz's method was commenced; this method of artificial respiration was alternated with the hot bathing for half an hour, by the end of which time the child was satisfactorily revived.

On returning to the mother, I found the uterus was still large, its size being evidently due to the presence of another fœtus;

on vaginal examination, I found that the second child presented by the vertex, but had not engaged; there were frequent pains but as no progress was being made I continued the anæsthesia, and proceeded to turn and deliver. My reason for so acting was that I considered that under the circumstances I could effect delivery most rapidly in that way, the patient residing in a remote country district where it was impossible to obtain even the assistance of a nurse; the second child was delivered at 1.15 p.m., sixty-five minutes after the first; it was enclosed in a separate bag of membranes, which it was necessary to rupture; the second child was also extracted in a state of white asphyxia, but was revived in a manner similar to the first, though with greater difficulty. On returning to the mother, the uterus was found to be still large, while pains were recurring from time to time; the uterus was apparently incapable, however, of emptying itself of its remaining contents, and as vigorous attempts at Crede's method of expulsion failed, I reluctantly decided at 3.30 p.m. to remove the placentæ manually; the anasthesia was therefore further continued, and I introduced my hand into the uterus. I found that one placenta, a small one, was lying free in the uterine cavity, while the other, a much larger one, was almost completely adherent. After removing the small one, I passed my fingers between the other placenta and the uterine wall, and removed it in the usual manner; the whole labour was thus completed at 4 p.m., six hours from the time when chloroform had first been administered.

With a view to minimising any risk of post-partum hæmorrhage one drachm of the liquid extract of ergot was given at once. The patient was conscious but somewhat dazed and very feeble; no hæmorrhage occurred, but at 5.30 p.m., she suddenly collapsed; the lips became livid, the breathing stertorous, and the pulse scarcely perceptible; her eyesight failed completely, though she retained consciousness; hot bottles were at once applied, and one-fiftieth grain of strychnine injected hypodermically; at the same time one drachm of aromatic spirits of ammonia was given by the mouth; she slowly rallied, but for two hours was in such a state as to cause great anxiety. During the evening there was a little vomiting; at 11-30 p.m., she was still very feeble, I accordingly injected another one-fiftieth grain of strychnine. She had an almost sleepless night, vomiting at intervals; the next morning she was better and continued to improve during the day. She only vomited once and took a fair amount of brandy, weak tea and milk; the following morning, however, I was called to her at 4 a.m., as she was constantly vomiting. I found she had brought up a large quantity of dark fluid suggestive of coffee grounds; on examination, however, the vomited matter was found to be quite simple, not even containing albumen. There was much tympanites and great tenderness over the stomach. I gave her one-sixth grain of morphia hypodermically, and later a few teaspoonfuls of black coffee, as the sickness seemed to be subsequent to the chloroform. To assist matters she was ordered to have two drachms of liquid food every two hours by the clock; a stomachic mixture was also prescribed. The bowels had been moved once during the night; the œdema was now almost gone—it had been rapidly, almost obviously disappearing from the time at which labour was completed.

The treatment was successful in stopping the vomiting, and later in the day she was able to take larger quantities of liquids at intervals of two hours. In the evening the temperature was 100°, and the discharge fœtid; the tympanites was less, but there was retention of urine. By the application of hot cloths, however, she was induced to pass urine during the night; the next day the temperature was 100° in the morning and 101·2° at night. The discharge was very fœtid, so a corrosive douche was given; subsequently creoline douches were given twice daily. She remained for some days in a precarious condition; on the seventh day she seemed to be rapidly losing ground: she was much depressed and refused to take any nourishment. 1-50th grain strychnine was given hypodermically. The next day she was a little better, but her condition was still most critical, as she refused any stimulants or nourishment. During that day I was able to secure a nurse for her, and also some champagne, which she took freely. There was at once marked improvement. Two days later the fœtid discharge ceased and the œdema disappeared. The following day, and this was after all only the tenth day, she was able to sit up in bed. From that time she made slow but continuous progress, and got up on September 13, after a little over a month in bed. Both the children survived. Two months later she was able to undergo a successful plastic operation for repair of the perineum, which had been ruptured during delivery.

I am indebted for permission to publish the case to Mr. F. W. S. Mann, as it occurred while I was temporarily taking charge of his practice at Rèvesby, Lincolnshire.

REPORTS OF CASES.

NOTES OF TWO CASES OF CHOREA TREATED WITH CALABAR BEAN.

BY JAMES W. RUSSELL, M.A., M.D. (CANTAB.), M.R.C.P.

THE two following cases are published in connection with the review of the treatment of Chorea to be found in this month's "Medical Abstracts." They occurred some years ago, and my notes of them are very scanty.

1. John D., aged 15, was admitted into the General Hospital, on March 29th, 1892, under the care of Dr. Simon. At that time I held the post of Resident Medical Officer, and had the opportunity of watching the case throughout its course. The boy had been ill for ten days, and from the onset the chorea had been of a serious nature. On admission, the movements were extremely violent, and the report states that they rendered any detailed examination impossible. Boards had to be placed along the sides of the bed in order to keep the patient from falling out. There was considerable difficulty in swallowing.

In the course of the night of March 30th, I was called up and found the violence of the movements so extreme that I kept the boy under chloroform for some time. This checked the movements somewhat for a few hours, but the case was as bad as ever when I visited it in the morning.

On March 31st, one-sixteenth of a grain of extract of physostigmine was ordered to be given three times daily, and from this time the movements rapidly subsided. On April 3rd considerable diminution is noted, and it is added that the boy was taking his food well. On April 4th, a further improvement is recorded, but he began to suffer from hallucinations, and the Calabar Bean was stopped. On April 6th there was very little movement, but complete cessation did not take place until April 19th. He was discharged on April 24th.

2. Ernest P., aged 9, was seen in consultation with the late Dr. Hoare on May 4th, 1894. He had been attacked with chorea three weeks previously, and had been treated with arsenic and chloral without success. When I saw him he was in an extremely serious condition. The movements were ceaseless and of great violence, he had been entirely sleepless for some nights, and feeding had become impossible owing to the violent choking produced by the entrance of the food into the larynx. The constitutional condition was very bad, and the tongue and lips were dry and covered with sordes. One-sixteenth of a grain of Extract of Calabar Bean was ordered three times daily, but in addition hot baths, with what little massage the mother was able to employ, were prescribed.

I did not see the boy again till three weeks later, when he was brought to my rooms free from any trace of chorea, and I was informed that the movements had ceased for the last few days. On May 15th, however, the father had called to tell me that his son was practically well, and that very rapid improvement had at once set in after the beginning of the treatment.

I am not disposed to attach too much importance to the drug treatment in these cases, and in the second I was informed that the hot baths had had a very sedative effect. The rapidity of improvement was, however, remarkable, and compares very well with most of the cases recorded in the abstract which follows.

MEDICAL ABSTRACTS.

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CHOREA.

BY JAMES W. RUSSELL, M.D.

TREATMENT.

1. *Du Traitement de la Chorée de Sydenham par l'Arsenic à Hautes Doses.* Par Octave del Pozo (*Thèse de Paris*, 1898).

2. *Four Cases of Chorea treated with large doses of Arsenic.* Under the care of Dr. A. H. Carter. Reported by Dr. Billington (*Lancet* July 21, 1900).

3. *Traitement de la Chorée par l'Arsenic associé aux Corps Gras.* Par Lucien Lévy (*Thèse de Lyon*, 1900).

4. *Cases of Peripheral Neuritis following Chorea treated with Arsenic.* By T. C. Railton, M.D., M.R.C.P. (*The Medical Chronicle*, February, 1900).

5. *Note on the Treatment of Severe Chorea by Sulphocarbolate of Soda.* By T. Stacey Wilson, M.D. (*Birmingham Medical Review*, July, 1899).

6. *Hydrobromate of Hyoscine in the treatment of Chorea.* By H. C. Rendle, M.B. (*Indian Medical Record*, August, 1899).

7. *Chorée; Bromure de Camphre; Guérison Rapide.* Par Bournville et Katz (*Le Progrès Médical*, 16 Juillet, 1898).

8. *Notes of Two Cases of Chorea treated with Calabar Bean.* By James W. Russell, M.D. (*Birmingham Medical Review*, September, 1900).

The employment of large doses of arsenic in the treatment of chorea was first advocated by Dr. Fr. Siredey in a paper published in 1876 in the *Journal de Médecine et de Chirurgie Pratique*, but it is only very recently that the merits of this method have received any general recognition. The cases upon which Dr. del Pozo's Thesis is based occurred under the care of Dr. Comby at the Hôpital des Enfants-Malades. The method of administration was mainly that advocated by Dr. Siredey The preparation used was the "liqueur de Boudin," a solution of 1 gramme of arsenious acid in 1,000 grammes of distilled water. Of this solution 10 grammes were administered during the first day divided into several doses. Supposing no signs of intolerance to make their appearance the dose was increased by 5 grammes per day, until on the sixth day 35 grammes were being taken in the twenty-four hours. The quantity was then daily diminished by 5 grammes, so that by the eleventh day the original dose was again reached, after which the medicine was stopped, a total of 235 grammes having been administered. This course, however, was completely carried out in two only of the thirty cases recorded by Dr. del Pozo. In the majority of instances the improvement of the patient or the appearance of symptoms of intolerance hastened the period of diminution, and a smaller total quantity was therefore administered. It should be added that for a child under seven years of age the initial dose was 5 grammes, and the maximum 20 or 25 grammes. The average duration of treatment before a cure was effected was from nine to ten days. Dr. Comby does not insist on the administration of the drug with food, though he orders the patient to take a few mouthfuls of tea or milk with each dose. Moreover, he gives the dose with some excipient in order to ensure still further dilution of the arsenic.

The limit beyond which the dose must not be allowed to go is of course in many cases established by the onset of symptoms of intolerance, though Dr. del Pozo believes that these generally occur, when they occur at all, simultaneously with the appearance of marked improvement in the choreic movements. The symptoms are mainly nausea, vomiting and sometimes diarrhœa. In many cases, however, some degree of vomiting is noticed quite early in the treatment, but it is then by no means necessary at once to suspend the administration of the drug. It is only when the vomiting is repeated several times a day and is accompanied by dry tongue and sordes on the teeth and lips that interference with the course of the treatment becomes imperative. And even then progressive diminution, not complete suspension, is indicated. Vomiting occurred in sixteen of the thirty cases.

Other bad symptoms were occasionally noted, and in one case gastric distress accompanied by fever occurred so persistently that the treatment had to be given up. Fever was also noted in three other cases. One case presented pigmentation of the back of the hands, which disappeared after leaving off the arsenic, and one patient suffered from a mild attack of neuritis.

Some degree of improvement was generally noticed on the second or third day, and a marked effect generally corresponded with the time of the maximum dose administered. When the arsenic was stopped the chorea had sometimes entirely ceased, sometimes a little movement still remained. It sufficed, however, to keep the patient in bed for a few days longer for all symptoms to disappear.

The following list gives the number of grammes of Boudin's solution administered and the duration of the treatment in the 26 cases in which a cure was effected :—

Grammes.	Days.	Grammes.	Days.
230	11	170	9
175	10	170	9
275	14	105	6
160	9	170	9
235	11	120	9
95	7	115	7
235	11	130	10
170	9	170	9
115	7	195	10
115	9	170	9
170	9	90	8
115	7	170	9
115	7	170	9

2. Dr. Billington records four cases of chorea treated with large doses of arsenic at the Queen's Hospital, Birmingham. The

system of progressive increase in the dose described above was not adopted, but 15 minims of Fowler's solution were administered steadily three times a day, except in one case in which the dose had to be reduced to 10 minims. The medicine was always given in a wineglassful of water and in the middle of meals. The following are brief notes of the cases :—

(1). Girl, aged 13, admitted February 13th, 1900, with a third attack of chorea of five weeks' duration and of moderate severity. 15 minims of Fowler's solution were ordered thrice daily on February 14th. No intolerance was shown until the 20th, when the patient vomited once shortly after taking the medicine. The treatment was stopped on February 21st, 315 minims of the solution having been administered. A marked improvement in the chorea was noted on the fourth day of treatment, and by the end of the week the movements had practically ceased. The child got up on February 24th, and was discharged on March 1st. She was kept under observation for two months, but there was no relapse.

(2). Girl, aged 6. Admitted April 23rd with chorea of ten days' duration. The movements were very violent, and the child was excitable and passionate. Treatment by arsenic was begun on April 23rd, and the dose was increased to 18 minims, thrice daily, on the 24th. There was immediate and marked improvement, and by the 28th the chorea had almost subsided, the child eating ravenously and sleeping well without sedatives. On the 29th she vomited twice, and on the 30th the medicine was stopped, 354 minims having been taken. On May 1st she vomited after each meal; the breath was foul, the tongue furred, and the abdomen retracted, and the child was heavy and dull. The vomiting persisted for several days in spite of treatment. On May 5th there was again slight twitching of the hands, which disappeared in a day or two. She was discharged on May 14th, having been free from chorea for a week.

(3). Woman, aged 25, two or three months pregnant. Admitted April 21st for left-sided chorea of a fortnight's duration. Treatment was begun on April 22nd. On the 24th the patient vomited once, three hours after taking the arsenic. She then got much worse; the chorea spread to the opposite side, and she became excited, unmanageable, and sleepless. On April 28th she began to improve, and on the 29th the arsenic was stopped; 315 minims had been taken. On the 30th the movements had almost stopped, though they did not quite cease till May 6th.

(4). Girl, aged 7. Admitted for mild chorea of three weeks' duration. Treatment was begun on May 6th, and she vomited once on the 7th and twice on the 8th, and the dose was then reduced to 10 minims. She continued to vomit once or twice each day till the 13th, when the medicine was stopped. 240 minims were taken altogether. There was rapid improvement from the first, and on the 13th all movements had stopped.

Dr. Billington remarks that the average length of stay in hospital of these cases was 18 days, all symptoms of chorea having ceased for five or six days before discharge. Previously the average stay had been about six weeks, and even then many cases were sent away but imperfectly cured.

3. The following account of Dr. Lévy's Thesis is taken from an abstract which appeared in the *Journal de Médecine et de Chirurgie Pratique* for June 25th, 1900:—

Experiments made by Dr. Chapuis in 1879 demonstrated that arsenic is much less toxic in its effects when given with butter than when taken in solution. Dr. Lévy, working in Dr. Weill's clinic, has accordingly made numerous observations on this point, with the view of determining the best mode of preparation and administration of the mixture. He recommends the employment of 10 grammes of butter, and to this he adds the total amount of arsenious acid which it is intended to use in the treatment of the case, together with common salt in such quantity that 0·1 gramme of salt corresponds to 0·005 gramme of arsenious acid. The object of the admixture of the salt is to increase the bulk of the powder and so to ensure greater evenness of distribution in the butter.

The principle of administration is in many respects the same as that described by Dr. del Pozo, though the dose of arsenic given on the first day is only 0·005 instead of 0·01 gramme. The quantity is increased by 0·005 gramme per day until a maximum of 0·03 gramme is reached, when the dosage is gradually diminished. The quantity is, however, given in a single dose, and it is repeated every second day only.

Many cases of chorea treated in this manner are recorded with very satisfactory results, and it is claimed that the method is so safe that the daily supervision by the physician needed in other methods is no longer necessary. The results are said to equal those obtained with Boudin's or Fowler's solutions.

4. The bad results which occasionally follow the use of large doses of arsenic are illustrated by Dr. Railton's experience at the Manchester Clinical Hospital for Women and Children. Beside gastric symptoms, Dr. Railton has met with pigmentation, roughening and peeling of the skin, erythematous or vesicular rashes, the latter sometimes in the form of herpes zoster, œdema of the eyelids and conjunctivitis, and atrophic paralysis. Examining the notes of 312 cases of chorea treated at the Hospital, in most cases with large doses of arsenic, Dr. Railton finds that four patients suffered from arsenical neuritis, though in one the affection was so slight that it was not thought worthy of description in detail. The following notes give the most important particulars of the other three cases:—

(1). Girl, aged 12, admitted with chorea of three weeks' duration. Ten drops of liquor arsenicalis were ordered to be taken three times a day after food, and were continued for three weeks, when the chorea was completely cured. 630 minims of the solution had been taken. A fortnight later symptoms of paralysis were observed, and in another month the patient "presented a typical condition of peripheral neuritis." The legs were much wasted and bent at the knees: she could move neither feet nor toes. The upper extremities were also affected.

(2). Girl, aged 11, admitted for chorea of a week's duration. Ten drops of liquor arsenicalis were given three times a day for four weeks, when all movement had entirely ceased. 840 minims had then been taken. A week later the patient began to complain of pain at the back of the knees on standing, and of giving way of the legs when she walked. From this time typical neuritis developed, and the upper extremities were involved.

(3). Girl, aged 10, admitted with chorea of three months' standing. Five drops of Fowler's solution were administered three times a day for the first three days, 10 drops for the second three days, and 15 drops for the succeeding fifteen days, giving a total for three weeks of 810 minims. The chorea was by this time completely cured, but during the latter days of the treatment the child had a foul tongue and red and watery eyes. On leaving the hospital there was some little weakness of the legs, and in three weeks she was brought back with well-marked neuritis.

The patients all made a good recovery, and in none was there any appearance of paralysis of the diaphragm. Dr. Railton thinks that the occurrence of neuritis in those predisposed to such affection depends on the total quantity of arsenic administered, rather than the length of time during which the treatment is continued. Seeing that arsenic is but slowly eliminated, it is possible that this may be so. In any case, the quantities given were considerably greater than those used by the previous writers whom we have quoted, and we are inclined to think that the amounts advocated by the latter are more in accordance with safety than the larger quantities used at the Manchester Hospital. It is fair to add, however, that many other children took similar amounts without developing any serious symptoms.

5. In a paper published in July 1899 in this Journal, Dr. Stacey Wilson describes and contrasts two cases of severe chorea. One of these was treated "by the recognised means of dealing with chorea" and died in eight days. The other had equally severe symptoms and steadily improved under doses of sulphocarbolate of soda. The following are brief abstracts of the notes of the two cases:—

(1). The patient was a girl, aged fourteen, who began to suffer from chorea three weeks before admission into the General Hospital. Her condition from the first was extremely serious and became steadily worse, in spite of treatment. For the first three days 20 grains of chloralamide were given every three hours. Large doses of chloral were then tried, but without effect. Wet packing was equally unsuccessful, and the patient died of asthenia on the eighth day after admission.

(2). The second patient was a girl, aged twenty-two, who was admitted into the General Hospital for her third attack of chorea. She had been ill about a month. She was at first treated with increasing quantities of arsenic and occasional doses of chloral hydrate. Under this treatment she became worse in all respects, and her condition gave rise to very grave anxiety. The heart was feeble, the conjunctivæ glazed, temperature subnormal, and tongue and lips covered with sordes. On the eleventh day after admission the arsenic was stopped and 20 grains of sulphocarbolate of soda and 1 grain of quinine ordered to be taken alternately every two hours. In all other respects the treatment remained the same. Thirty-six hours after the change of treatment a marked improvement was noticed, and chloral and hot packs, which before had been without result, now began to have a decidedly good effect. The movements were also diminished. By the end of the fourth day the patient had become quite sensible and was sleeping the greater part of the day. From this time she made a rapid and complete recovery.

Dr. Wilson also refers to two cases treated in the same manner by one of his colleagues. In one of these good results followed the use of the drug, but the other proved fatal in spite of all treatment.

6. We take the following notes of Dr. Rendle's paper from the *Medical Review*, Vol. II. :—

An Anglo-Indian, aged 16, was admitted to hospital on Feb. 11th, 1900, for severe chorea. The tongue was dry and coated, the temperature a little raised, the pulse weak and the respiration irregular. There were sores on the head, elbows and heels, due to the violence of the movements. Bromides, chloral and arsenic in increasing doses were tried without effect, and on Feb. 16th the condition seemed to be hopeless. Hydrobromate of hyoscine was then given hypodermically twice a day in doses of 1-200th grain the first day and 1-100th grain afterwards till Feb. 23rd. By this time the choreic movements had almost ceased, and the injections were therefore stopped. Complete recovery followed, though there was some temporary mental derangement.

7. Drs. Bournville and Katz report a case of severe chorea in which improvement followed the administration of bromide of camphor. The drug was given in capsules, each of which contained 20 centigrammes, or about 3 grains. Two capsules were given on the first day, and three during the next three days, after which the number was increased by one every two days, so that on the 15th day 9 capsules were taken. The dose was then diminished by corresponding degrees. In addition, cod liver oil and iodide of iron were ordered, and as the patient improved, baths and exercises were added to the treatment.

The course of the case was briefly as follows :—

The patient, a girl aged 13, was admitted into hospital on March 6th, 1898. Choreic movements had first been noticed by her parents on February 19th, but for some days previously the child had been irritable and easily excited. On admission, the movements were very violent and it was found impossible to take the temperature. She could neither sit nor stand unsupported, and it was necessary to feed her by hand. The movements were generally distributed, but were most marked in the upper extremities. Writing was scarcely possible.

Bromide of camphor was first administered on March 9th. On March 15th, the patient was allowed to get up, though walking was still impossible. There was slight improvement in writing and she now began to eat without biting her tongue as she had hitherto done. On March 20th, she was able to take a few steps, and there was marked diminution in the movements. On April 5th, the movements had entirely ceased on the right side, but were still perceptible occasionally on the left. The child was practically cured on April 19th.

8. The eighth paper is published in this month's Review, and need not therefore be abstracted.

The nett result of the various papers appears to be that there is very strong evidence in favour of the beneficial effect of large doses of arsenic in almost any case of chorea, and that in certain of the more acute cases sedatives have a decided action. Dr. Stacey Wilson's experience with sulphocarbolate of soda would seem to point to the importance of combating the toxæmia which is probably the ultimate cause of chorea.

CHOREA OF ORGANIC ORIGIN.

De l'Hémichorée Prœparalytique. Par E. Boinet (*Archives Générales de Médecine,* 1900).

Contribution à l'Etude Clinique et Anatomo-Pathologique de l'Hémichorée Organique. Par le Dr. Touche (*Archives Générales de Médecine,* 1900).

1. Professor Boinet reports two cases in which paralysis of hemiplegic distribution was ushered in by choreiform movements occurring on the side which was about to be paralysed. He gives a short summary of the literature of the subject, and finds that only eleven cases of the sort have yet been recorded. According to M. Raymond the movements in pre-hemiplegic hemichorea are of less amplitude than those of the post-hemiplegic variety, and last but a few days. They are rapidly replaced by hemiplegia. Often they affect the hand only. Pre-hemiplegic hemichorea has a more serious effect on prognosis than that which is secondary to hemiplegia.

Case 1. The patient, a woman, aged sixty-five, without any previous symptoms was suddenly attacked whilst at church with choreiform movements of the left arm and leg. She noticed no weakness of the affected limbs and was able to walk to her home, which was situated about a kilometre from the church

She continued with difficulty to perform her household duties for a fortnight, when she was admitted to hospital. At that time the movements were constant, and were repeated about eighty-four times per minute; they were somewhat diminished during voluntary motion, and ceased during sleep. There was no apparent loss of power, and sensation was normal. The knee-jerks were exaggerated. There was some rigidity of the left leg. A month later there was marked muscular atrophy, and the affected limbs were becoming weak, and both these conditions increased during the stay in hospital. Professor Boinet concludes that the weakness was mainly due to the muscular atrophy, and that the latter was secondary to degeneration of the pyramidal tract. A detailed account of the movements will be found in the original paper.

Case 2.—The patient was a man, 74 years of age, who was subject to auditory and visual hallucinations. The onset of the movements was sudden. The movements themselves presented a marked resemblance to those of athetosis. About six weeks after the onset the leg began to atrophy, and in little more than two months from the attack there was almost complete paralysis, with cessation of all movements. Movements continued somewhat longer in the hand, but this also ultimately became atrophied and paralysed. The paralysis was again considered to be secondary to the muscular atrophy. It should be added that in this case there was a little slowly increasing loss of tactile sensation, and that the movements were again somewhat diminished by voluntary action. The latter point is not characteristic of post-paralytic hemichorea.

Autopsies made by Charcot, Raymond and Grasset in seven cases of pre-paralytic hemichorea showed that the lesion was localised in the part of the internal capsule in close relation with the optic thalamus. In the post-hemiplegic cases the limitation of situation is believed to be not so strict.

2. In his paper in the *Archives Générales de Médecine* Dr. Touche publishes details of 24 cases of chorea due to organic

cerebral disease, and draws from them the following conclusions:—

Age.—Hemichorea of organic origin generally attacks adults or old people. Thus, in the 24 cases only three of the patients were children, aged 4, 7, and 8½ years respectively. Three of the remaining patients were between 26 and 35 years of age, two between 40 and 50, nine between 50 and 60, and seven between 60 and 70. Thus, in 17 of the 24 cases the age lay between 50 and 70.

Sex.—Nine of the patients were men and 15 women.

Mode of Onset.—In the case of the three children the affection followed typhoid fever, infantile convulsions, and acquired hydrocephalus respectively. In all the other cases the disorder was closely related to hemiplegia, and was either primary, coinciding with the onset of the paralysis, or secondary, coming on generally from three to six months after the hemiplegia.

Choreiform Movements.—The quickness of the movements varies in different cases, and Dr. Touche is of opinion that they are more slowly performed the nearer the part of the limb affected is to its extremity. Thus, in the fingers they are very slow and generally present the slow rhythm of athetosis, whilst the shoulders are usually affected with brisk and sudden movements. The rhythm is mostly irregular, though marked regularity was a feature of two of the recorded cases. The parts affected are, in order of frequency, the upper limb, lower limb, neck and face. The cases may be classified according to distribution in seven groups:—

(1). *Hemiathetosis superior*, in which there are movements of forced extension and separation of the fingers with pronation of the hand. This condition was observed in seven of the cases.

(2). *Brachial hemichorea*, in which shrugging of the shoulder predominates, with movements of flexion and extension of the elbow. The wrist and hand are less affected, but sometimes there is an accompanying rotation of the head with facial movements. (Two cases).

(3). *Brachio-athetotic hemichorea*, or a combination of the two preceding forms. (Four cases).

(4). *Complete hemiathetosis*, differing from the first group by the presence of athetotic movements in the toes as well as in the fingers. (Three cases).

(5). *Complete hemichorea*, with involvment of all the muscles of one side of the body.

(6). *Rhythmical hemichorea.* This is a rare variety, and forms almost a transition between chorea and epilepsy. The distribution of the movements in the two cases recorded was the same as that in brachial hemichorea.

(7). *Double hemichorea.* Only two cases of this condition were observed. In one there was double brachial hemichorea with involvement of the face and neck, in the other the affection was complete on both sides.

In one case the chorea was limited to the lower limb.

The movements could generally be voluntarily suspended for a few moments, though in two cases they were increased by any attempt of the sort. Probably it is only in the less severe cases that such inhibition is possible. In some cases attempts to inhibit the movements give rise to a painful sensation in the corresponding part of the limb. Whilst walking, the movements of the upper limbs are apt to be increased. In general, the movements cease during sleep, but this is not always the case.

Paralysis, etc.—Flaccid paralysis and contracture may be associated with the chorea. It may affect the same limb or part of a limb as the choreic movements, or it may have a different localisation.

Sensation.—Both subjective and objective disorders of sensation are met with. The former may consist of pain or any other form of paræsthesia, or of some affection of the special senses, such as flashes of light, noises in the ears, etc. In nine of the cases there was some degree of diminution of objective sensibility most often affecting all forms, but sometimes consisting in a diminution of one or other variety of sensation with increase in another direction. The alteration was always situated on the same side as the chorea, and was generally much more marked in the parts affected with chorea than in those which were free from the movements. Complete hemianæsthesia was never met with. Three patients suffered from hemianopia, and two others from a narrowing of the field of vision. It may here be added that one patient had paralysis of the third nerve, and that in several there was diminution in the range of the eye movements.

Morbid Anatomy.—In ten of the cases a *post-mortem* examination was made, and the following conditions discovered:—

(1). Destruction of the posterior two-thirds of the caudate nucleus, the adjacent part of the corona radiata and the external capsule; also a lesion of the genu of the internal capsule and of the antero-superior part of the optic thalamus There was chorea of the face and hand.

(2). A lesion of the posterior part of the internal capsule, of the internal nucleus of the optic thalamus, and also of the (?) pulvinar. Athetosis.

(3). Lesion of the posterior part of the caudate nucleus and the genu of the internal capsule, and a hæmorrhage in the optic thalamus. Chorea of the neck and upper limb.

(4). A single lesion in the corona radiata corresponding to the ascending frontal convolution. Athetosis of the hand with movements of the shoulder and elbow.

(5). Cortical lesion giving rise to hemianopia, and a hæmorrhage damaging the red nucleus, the fibres of the third nerve, the locus niger and the foot of the peduncle. Chorea of the upper limb.

(6) A small hæmorrhage limited to the postero-superior part of the caudate nucleus. Chorea of the lower extremity.

(7). Hæmorrhage damaging the outer nucleus of the optic thalamus and the posterior part of the posterior limb of the internal capsule. Athetosis.

(8). Lesion of the anterior limb of the internal capsule and of the caudate and lenticular nuclei. Athetosis.

(9). Softening of the superior vermiform process of the cerebellum and the adjacent parts. Generalised chorea.

(10). Softening of the inferior surface of the cerebellum and a hæmorrhage into the caudate nucleus. Athetosis of the side corresponding to the lesion of the caudate nucleus.

It thus appears that hemichorea may be produced by a lesion of (1) the corona radiata, (2) the caudate nucleus, (3) the anterior part of the lenticular nucleus, (4) the outer part of the optic thalamus, (5) the anterior limb, genu or most posterior part of the internal capsule, involving also the thalamus or caudate or lenticular nucleus, (6) the red nucleus, and (7) the upper surface of the cerebellum.

The old theory according to which post-hemiplegic chorea always indicated a lesion of the optic thalamus or the posterior part of the posterior limb of the internal capsule, is thus not exclusively correct. Almost all the above cases may be said to involve some degree of irritation of the pyramidal tract, and so far they afford support to the theory of Pick and Kahler, which attributes post-hemiplegic chorea to this condition. Dr. Touche, however, is inclined to believe in the theory propounded by Bonhœfer and Muratof, according to which there is co-ordinate action between the cerebellar and cerebral cortex, acting by way of the superior cerebellar peduncle, the red nucleus, the optic thalamus, the genu of the internal capsule, the anterior segment of the latter, the anterior part of the lenticular nucleus and probably the part of the caudate nucleus adjoining the anterior limb of the internal capsule. In all Dr. Touche's cases this tract was damaged in one or other part, and it is thought that the interference with the co-ordinate action of the cerebrum and cerebellum thus brought about was the most probable cause of the disordered movements.

"CHORÉE VARIABLE."

De la "Chorée Variable" ou Polymorphe. Par Georges Patry (*Thèse de Paris*, 1897).

In the *Révue Neurologique*, 1896, No. 14, Dr. Brissaud called attention to an irregular and intermittent form of chorea, the characteristics of which correspond neither to those of ordinary nor to those of hereditary chorea. To this variety he gave the name of "Chorée Variable." He described it as a chorea "which has neither uniformity in its actual manifestations, nor regularity in its evolution, nor constancy in its duration. It comes and goes, increases and diminishes alternately, ceases suddenly and reappears in a day, and disappears again, with movements now vigorous, now slow, and without any definite localisation." Of this variety of chronic chorea Dr. Patry studies six examples.

Etiology and Symptoms.—The disorder being especially a malady of degenerates, a neurotic inheritance is generally to be traced in the family history. The following histories were obtained in Dr. Patry's cases:—(1) Father alcoholic, mother neurotic and emotional; (2) father deserted his wife, the the latter showing no neuropathic tendencies; (3) father tubercular, mother died at the age of fifty-seven, having been paralysed for three years; (4) father syphilitic and a sexual pervert; mother subject to epileptiform convulsions for thirteen years. The remaining two cases presented no neurotic inheritance.

The age of the youngest of the six patients was fifteen years, that of the two oldest twenty-eight years. Four of the patients were of the female sex.

But little definite can be said as to the immediate causation of the disorder. Two patients, however, were said to have suffered recently from fright. Dr. Patry is of opinion that in most of the patients there was some degree of auto-intoxication. Thus, one patient was ill-nourished and ill-developed; another was hysterical and suffered from chlorosis; and in the case of two others the chorea developed a few months after confinement.

All the patients, with one exception, showed imperfect physical development: they were slow in learning to walk, and at 16 years of age none had reached puberty. In all, also, there were well-marked signs of an unstable mental condition. The following are brief notes on these points:—

1. Boy, aged 16. Microcephalic. Both physical and intellectual development greatly delayed. Has the attributes of a child rather than of a boy 16 years of age.

2. Woman, aged 30. Physical and mental development incomplete.

3. Woman, aged 26. No physical signs of degeneration, but of very unstable disposition. Is a creature of impulse; has learnt no occupation and cannot get on with her relations. She is hysterical and has epileptiform attacks. She is incapable of sustained action or intention.

4. Boy, aged 15. Physical and intellectual development imperfect. Is subject to numerous childish fears and habits.

5. Woman, aged 29. Suffers from hallucinations and morbid fears.

6. Woman, aged 28. No signs of physical degeneration, but mental condition allied to that of melancholia.

The patients were all irritable and easily excited. Their memory was bad, and they had much difficulty in learning anything fresh: they were inattentive and incapable of sustained work. Most gave but little sign of affection for others and were markedly egotistic, though in one there was an exaggeration of affection. None showed any alteration of speech, but two of the patients had hallucinations of sight. Sleep was invariably disturbed, and all these patients were subject to dreams and nightmares. The mental symptoms in nearly all the cases made their appearance some time before that of the motor disorder.

All the patients complained of pains, varying from severe headache to slight pains in the back and limbs. These pains were similar to those often met with in neurasthenic patients.

The motor disorder was also variable in its intensity. Sometimes it appeared to be little more than a tic, whilst in other cases the movements were violent. One of the characteristic features of the complaint is the variability of the movements at different times in the same patient, changing not only from day to day but also from moment to moment. Nor is the localisation any more constant. In all the cases temporary voluntary inhibition of the movements was possible.

Nothing definite can yet be stated as to the morbid anatomy of the disorder.

The course of the disease is a long one, and owing to the variations in its manifestations and the long pauses which may occur in its evolution, it is difficult to say in any given case that the patient is cured of his malady. One of the six patients described by Dr. Patry, however, was considered to be definitely cured, though even here the prognosis as to the mental condition was not altogether satisfactory.

In making the diagnosis from other forms of chronic chorea the extreme variability of the symptoms is the point on which most reliance must be placed.

HUNTINGTON'S CHOREA.

Observation de Chorée Chronique Héréditaire d'Huntington. Par MM. les Docteurs P. Kéraval et G. Raviart. (*L'Echo Médical du Nord*, 17 Juin, 1900).

The patient was a man, 42 years of age, admitted for chorea into the Armentières Asylum on Sept. 1st, 1899. His father developed signs of the same complaint at the age of 27 years and died 10 years later. He (the father) had two sisters and one brother, all older than himself, but none of these suffered from any nervous disorder. His mother was 48 years of age when he was born. He married at the age of 18 and had two sons, of whom the present patient was the older by four years. The younger brother was alcoholic and given to sexual excess, and developed chorea at the age of 38. The patient whose case is now recorded was also of dissipated habits, but in his case the chorea developed in his 24th year. On admission he was in a very feeble condition and died two months later, on November 3rd, 1899.

A detailed account of the examination of the nervous system is given by the authors, of which the following is a brief summary:—

There was marked alteration of the pyramidal cells of the cerebral cortex, most marked in the right ascending frontal convolution, varying from a mere change in the perinuclear protoplasm to almost complete disintegration of the cell bodies. Interstitial and pericellular infiltration with small round cells possessing a large nucleus and often an imperceptible amount of protoplasm was found in the same area of distribution. These cells are believed by the writers to be neuroglial in nature. The same cell changes and infiltration existed also in the cord and especially in Clarke's column. There was no definite degeneration of the cells of the anterior cornua, and the peripheral nerves were intact.

REVIEWS.

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THE EDINBURGH MEDICAL JOURNAL. VOL. VII.

THE first volume of the Edinburgh Medical Journal for the present year contains an exceptionally valuable series of original articles, especially in the department of Ophthalmology, surgical and medical. As an instance of the latter we would draw attention to the paper on "Optic Neuritis in Children," by Mr. Buchanan (Glasgow). The writer gives instances of children with enlarged cervical glands, and with evidence of optic neuritis more or less marked or else impaired vision as a result. It does not follow that such cases are tubercular, but as a rule they are, and the eye condition seems to point to tubercular meningitis. Other causes may be present such as some exanthematic disease or acute rheumatism. There is an instructive article by Dr. W. Elder, on "The Clinical Varieties of Visual Aphasia." Dr. A. P. Luff contributes a paper on "The Differential Diagnosis of Gout, Rheumatism, and Rheumatoid Arthritis," which is of considerable practical value. The question is at times much more difficult to decide than would appear on paper, and possibly in some instances there is a combination. The writer differs strongly from the idea that rheumatic arthritis is "of nervous origin" (by this we suppose is meant a neurotrophic origin), and he gives among other reasons that if it were of nervous origin "one would expect all the joints to be affected at the same time." We do not feel inclined to accept such an argument. Other joint lesions distinctly neurotrophic begin in one articulation, and we have seen a case where the joints of one hand showed the typical characters of rheumatoid arthritis as the result of a traumatic nerve lesion, none others being affected. There are many other papers which we cannot do more than mention, e.g., The Treatment of Ringworm of the Scalp (Dr. Allan Jamieson), Perigastric and Periduodenal Abscess (Dr. Soltan Fenwick), as also many interesting clinical notes of cases.

IMPERATIVE SURGERY.*

THIS book seems to be intended primarily for the general practitioner, who, while not ordinarily performing major surgical operations, may sometimes be obliged to do one, an operating surgeon not being at hand. We are not at all sure that a book of this kind is in any way a necessity, for we are inclined to think that the practitioner who has at hand a good text-book like "Erichsen," combined, perhaps, with one of the numerous small books dealing with the subject of aseptic methods in surgery, will have all that he wants. But it seems to be the fashion, especially in America, to choose a certain number of surgical subjects and to write a book upon them, regardless of the fact that the subjects in question are quite adequately dealt with in the larger text-books. However, we must admit that in the book before us the author has done his work well. He has taken a most comprehensive view of what is required; for besides describing operations he has included sections on instruments, splints, anæsthasia, and the preparation of a room for an operation. He describes the operative treatment of every condition which can in any way be looked upon as a surgical emergency, and we may say that the descriptions are very clear, that the illustrations are excellent, and that the book is well printed. Dr. Lilienthal has certainly performed his task in an admirable manner.

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* Imperative Surgery, for the General Pactitioner, the Specialist, and the Recent Graduate. By Howard Lilienthal, M.D. New York: The Macmillan Publishing Company. 1900.

TROPICAL DISEASES.*

THE most important alterations in the new edition of Dr. Manson's Manual of the Tropical Diseases are to be found in the chapter on malaria. At the time of publication of the first edition the part played by the mosquito in the propagation of the disease was a matter of speculation. It is now established by a series of observations which have placed it beyond doubt. Not a little new material has therefore had to be added to this, the most important part of the book. A few additions have also been made to the list of skin diseases caused by animals, and a short account of climatic bubo has been written. But apart from these additions the whole work has undergone careful revision and reference is invariably to be found to all the most recent work in the department of tropical diseases. The book is thus thoroughly up to date, and remains the standard text-book on these diseases.

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* Tropical Diseases. A Manual of the Diseases of Warm Climates. By Patrick Manson, C.M.G., M.D., LL.D. (Aberd.), F.R.C.P., F.R.S., Physician to the Seamen's Hospital Society, &c. Revised and Enlarged Edition. London, Paris, New York, and Melbourne: Cassell and Company, Ltd. 1900.

THE SURGERY OF THE ALIMENTARY CANAL.*

THIS book is an abridged and amended edition of the author's larger treatise on the same subject. It necessarily has the faults which one usually finds in an abridgment; but, when we have said this, we have nothing but what is favourable to say of Dr. Maylard's book, for in it are collected together descriptions of many subjects, a knowledge of which it is most important for the senior student to possess, but which are, nevertheless, very imperfectly dealt with in ordinary text books. All the sections of the book are good, but for special praise we may single out the chapters on the stomach and on the rectum, and also those on the various operations on these parts. We commed the book most highly to the notice of students preparing for any of the higher examinations in Surgery.

A HANDBOOK OF THE DISEASES OF THE EYE.†

MR. SWANZY'S book is generally and rightly regarded as the best of the smaller treatises on the diseases of the eye, and the appearance of a seventh edition is good proof of its popularity. The changes in this edition are not numerous, though there is ample evidence that it has undergone a careful revision. The main alterations consist in the addition of descriptions of Dr. Mackenzie Davidson's method of detecting and localising foreign bodies in the eye by means of the Rontgen Rays, and of Mr. Mules' operation for ptosis. Three tables have also been inserted giving the actions and relative value of the various mydriatics, myotics, and local anæsthetics. These tables have been prepared by Dr. Louis Werner, and form a useful addition to the book. In other respects, as far as we are able to judge, it has merely received such slight alterations as are necessary to keep it well abreast with the times.

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* The Student's Handbook of the Surgery of the Alimentary Canal. By A. Ernest Maylard, M.B., B.S., Lond. London: J. and A. Churchill. 1900.

† A Handbook of the Diseases of the Eye and their Treatment. By Henry R. Swanzy, A.M., M.B., F.R.C.S I., Surgeon to the Royal Victoria Eye and Ear Hospital, and Ophthalmic Surgeon to the Adelaide Hospital, Dublin. Seventh Edition. London: H. K. Lewis. 1900.

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THE
BIRMINGHAM MEDICAL REVIEW.
OCTOBER, 1900.

ORIGINAL COMMUNICATIONS.

EXAMINATION OF THE BLOOD AS AN AID TO DIAGNOSIS.*

BY T. LAW WEBB, L.R.C.P. LOND., ETC.

"HÆMATOLOGY is a study so new that it is difficult to trace exactly the limits of its usefulness in medicine. Certain problems have been solved by it, where but little help was expected; and, on the contrary, where great expectations had been aroused, disappointment has ensued. We might have expected from it some enlightenment as to the nature of rheumatism, uræmia, or diabetes, but none has come. On the other hand, who could have dreamed that it would help us to diagnose central pneumonia, deep-seated suppuration, or trichinosis, besides in many cases enablng us to make a prognosis of value, where this would otherwise be impossible, as in pneumonia or relapsing fever.

"Although it is still true, perhaps, that there are not more than five or six diseases which can be diagnosed absolutely by a blood examination only, yet there are many morbid conditions in which such an examination is a very great help in arriving at a conclusion as to the nature of the case. Not pathognomonic signs, but rather links in a chain of evidence, are what we are to expect from an examination of the blood. Very often the simple discovery that the blood is normal may be a fact of the greatest value in diagnosis.

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* A Paper read at the Salop Infirmary before a Meeting of the Clinical and Pathological Section of the Shropshire and Mid-Wales Branch of the British Medical Association, on December 12th, 1899.

"On the whole, examination of the blood gives evidence similar in kind, and not inferior in value to that obtained by examination of the urine. Both methods of examination give us—

"1. A ready-made diagnosis in a few diseases;

"2. Side lights on a good many obscure conditions;

"3. The assistance, often very great, of a negative report."

I avail myself of these judicious remarks of Dr. R. C. Cabot as expressing most happily what I wish to say as to the general usefulness and importance of a systematic clinical examination of the blood.

In this paper I propose to treat first of the methods which are available for use in such clinical examination, and then notice briefly the more important diseases and conditions in which such methods give us information of diagnostic or prognostic value.

The methods chiefly in use for examining the blood (as far as they are clinically useful) may be enumerated as follows:—

1. The examination of fresh blood by the microscope (with or without the warm stage).
2. The microscopic examination of dried and stained films.
3. The estimation of the amount of colouring matter.
4. The determination of the specific gravity of the blood
5. The counting of the red and the white corpuscles.
6. The estimation of the relative volumes of corpuscles and plasma by means of the centrifuge.
7. The bacteriological examination of blood.
8. The examination of the Serum, and fibrin formation.

Of these methods, some are exceedingly elaborate, such as the counting of the corpuscles, and the bacteriological examination of blood. Expensive apparatus is necessary, as well as much skill and experience in its use. Such appliances, and the use thereof, are well described in the text-books, and are, no doubt, indispensable in certain cases. These cases, however, are not numerous; and, therefore, passing them by for the present, I would direct attention more particularly to those simpler methods of procedure which can easily be used at the bedside, and which do not require expensive instruments not usually in the possession of general practitioners.

To obtain blood for examination, the lobe of the ear, or the finger tip must be punctured with a needle. It is better to use a triangular-pointed surgical needle than the ordinary sewing needle, as the latter gives more pain, and does not draw blood so readily. Before puncturing, rub the part with a damp towel to remove gross dirt, loose epidermis, &c., and then apply a little friction with a dry cloth to cause a slight hyperæmia. Except for bacteriological examination, it is not necessary to sterilize the skin. The first drops which exude are wiped off and serve to wash away impurities. To examine fresh blood, a perfectly clean cover-glass is applied to the convex surface of the issuing drop of blood, and is then allowed to fall upon a slide so that the blood spreads out in a thin film between the two glasses. This will not take place in a satisfactory manner unless the slide and cover glass are absolutely and chemically clean. The blood can be preserved from evaporation and drying up at the edges of the film, by painting on the slide a ring of vaseline or cedar oil before applying the cover glass. In this way, especially if kept in a warm place, the corpuscles remain unchanged for many hours. The blood should be examined with an oil-immersion lens. By this simple procedure, certain diseases can be diagnosed absolutely. For it is the best method of demonstrating the presence of the—

1. Plasmodium Malariæ.
2. The Spirochæte of Relapsing Fever.
3. The Filaria Sanguinis Hominis.

It is also a quick and convenient way of finding out whether there is—

a. Rouleaux formation among the red cells.
b. an increased amount of Fibrin.
c. Any *considerable* Anæmia or Leucocytosis.

d. Any *great* diminution of Hæmoglobin in the red cells.

e. Any deformed or mis-shapen red cells.

f. Any increase of the Blood-plates.

To appreciate some of these changes requires practice, and familiarity with the appearances of normal and abnormal blood. And although certain cases of severe Leukæmia, &c., can be diagnosed by the examination of fresh blood by a skilled observer, yet, unless this is supplemented by a study of dried and stained films, many mistakes will occur.

For this reason, it is important that the simple technique of preparing such films should be more widely known. More can be found out as to the nature of the changes in the blood in a given case by this, than by any other single method. There are many methods used in preparing, fixing, and staining dried films. I find that good thin films can be made by touching the drop of blood which exudes from the puncture with a small strip of tissue paper which is then drawn rapidly along the surface of a clean slide, making a thin smear of blood which dries very quickly. (If it is not dry in ten or fifteen seconds, it is generally a sign that too much blood has been used and that the film is too thick.) The thin Japanese paper used by type-writers cut into strips two inches long and half an inch wide, does very well for this purpose. Being exceedingly limp and flexible, it allows the drop of blood to spread itself out by capillary attraction between the paper and the glass, and when drawn along the slide, leaves a broad thin film of blood.

For fixing the preparations, heat may be used, or they may be treated by immersion in ether and alcohol. If they are to be stained with a triple aniline dye, after the manner of Ehrlich, heat must be used. Some simple hot air oven is required. A small metal box with a lid perforated to receive a thermometer is all that is required. This must be supported over a gas flame, and the cover-glasses with the blood-films upon them placed therein and heated up gradually to a temperature of 150° C. This heat must not be exceeded, or the films will be destroyed.

About ten or fifteen minutes heating is usually sufficient to ensure good staining.

With heat fixation the best stain to use is the following modification of Ehrlich's tri-colour mixture:—

℞. Saturated watery solution of Orange G. 6.c.c.
,, ,, ,, of acid Fuchsin 4.c.c.
Mix, and add guttatim, shaking between each addition,
Saturated watery solution of Methyl Green 6.6.c.c.
Then add— Glycerine 5.c.c.
Absolute alcohol 10.c.c.
Water 15.c.c.
Shake well for one or two minutes.
Let stand for 24 hours. Do not filter.

To stain the films, a drop of the above stain is spread over the surface of the specimen, and allowed to remain two or three minutes, or longer if convenient, as it is impossible to over-stain with this re-agent. It is then washed off with water, and the film dried between folds of filtering paper. When quite dry, a drop of Canada Balsam is placed upon the film, and it is mounted in the usual way. The red corpuscles are stained bright yellow, the nuclei blue or bluish green, and the granules in the protoplasm bright pink. This is an admirable stain for diagnostic purposes.

Fixation with alcohol and æther (equal parts), followed by staining with eosin and hæmatoxyline, is perhaps simpler and easier than the preceding, and is very satisfactory. The films are placed in alcohol and æther for two minutes or more, and then taken out and dried. They are then stained for half a minute in eosin 1 part, water 100 parts, alcohol 100 parts. Then rinsed in water, and stained with hæmatoxyline (filtered) for ten or fifteen seconds, again washed in water, dried, cleared, and mounted. By this process the nuclei are beautifully and sharply stained and differentiated, and nucleated red corpuscles are easily seen. The two methods of fixation and staining described are those chiefly used hitherto; but, recently, an improved process has been suggested whereby fixation and staining are effected at one operation, and by a single fluid. For this advance we are indebted to Dr. Louis Jenner, of St. Thomas's Hospital. The fluid used can be prepared as follows:—

Take of 0·5 p.c. solution of Eosin (Grübler's yellowish) in Absolute Methylic Alcohol	125 c.c.
0·5 p.c. solution of Medicinal Methylene Blue in Absolute Methylic Alcohol	100 c.c.

Mix well.

To use it, pour about seven drops on to each cover-glass film, and allow the fluid to remain for two or three minutes. Pour off the stain rapidly, and rinse in *distilled water* until the film has a pink colour, which usually appears in about five or ten seconds. Dry between folds of filter paper, and by subsequent agitation in the air, and mount in Xylol Balsam.

The red discs are a terra cotta colour; the nuclei of the white corpuscles are blue; the platelets are mauve; the granules of the polynuclear leucocytes and myelocytes are red; the granules of the mast cells are violet; and bacteria, filariæ, or malaria parasites are pale blue. Very beautiful preparations can be made in this way; and with very little trouble, as no previous fixation is required, the absolute alcohol in the re-agent effectually fixing the blood while it is being also stained.

To avoid disappointment, it is well to understand that this is a very delicate stain, and that to obtain the best results, certain precautions must be taken. Dr. Jenner has very kindly favoured me with a communication in which he points out the conditions essential to success—

1. The cover-glasses *must be chemically clean.*
2. The films must be very thin, and be stained as soon as possible after they are dry.
3. A watch-glass should be placed over the cover-glass whilst staining is going on, to prevent evaporation.
4. Pour off stain *rapidly* and rinse in plenty of distilled water.

5. Xylol Balsam must be good (such as Kanthack's) as some samples cause rapid fading of the stain. It is well to keep preparations from strong light until the balsam has set.

The amount of hæmoglobin present in the blood may be estimated in several ways. Usually the hæmaglobin increases and diminishes in lines parallel to those of the variation in number of the red cells. When this is so the amount of hæmoglobin contained in each corpuscle is supposed to be normal, and the "colour index," is said to = 1 Where the hæmoglobin is diminished more than the count of corpuscles, we say that the colour index is less than unity. If a man has 5,000,000 red cells per cubic millimetre, and only 50 per cent. of hæmoglobin, we estimate the colour index by reducing the count of cells to a stated percentage (5,000,000 cells = 100 per cent. of cells) and dividing this percentage into the hæmoglobin percentage—*i.e.*, $\frac{50}{100} = 0{\cdot}5 =$ the colour index.

If, in another case, the count of red cells was 4,000,000, (= 80 per cent.) with 60 per cent. of hæmoglobin, the colour index would be $\frac{60}{80} = 0{\cdot}75$.

To measure the amount of hæmoglobin present in the blood, it is usual to employ one or other of the colour tests, *i.e.*, a measured quantity of diluted blood has its depth of colour compared with that of certain tinted glasses which are stained to imitate the colour of blood, and are graded in several depths of tint. Von Fleischl's hæmometer, and Dr. Oliver's hæmoglobinometer, are instruments of this kind. They are both expensive, and not likely to be in the possession of general practitioners; moreover, it is very difficult to judge of slight differences in depth of colour. It is fortunate therefore, that the specific gravity of the blood, which can be easily ascertained, runs closely parallel to the amount of hæmoglobin, as will be seen on inspection of the following table from Schmaltz:—

Sp Gr.		Amount of Hæmoglobin.
1030	=	20 per cent. ±
1035	=	30 ,, ,,

Sp. Gr.		Amount of Hæmoglobin.		
1038	=	35	per cent.	±
1041	=	40	„	„
1042·5	=	45	„	„
1045·5	=	50	„	„
1048	=	55	„	„
1049	=	60	„	„
1051	=	65	„	„
1052	=	70	„	„
1053·5	=	75	„	„
1056	=	80	„	„
1057·5	=	90	„	„
1059	=	100	„	„

The specific gravity of blood can be easily taken by Hammerschlag's method. In this a urinometer tube is filled with a mixture of chloroform and benzole, so proportioned that its specific gravity is about 1059 (*i.e*, of about the same density as normal blood). A drop of blood is then drawn into the tube of a Thoma-Zeiss pipette, or a small medicine dropper, and then blown out into the chloroform-benzole mixture. The blood will not mix with the fluid, but floats in it like a red bead. If it sinks to the bottom, add more chloroform, if it rises to the top, add benzole, until, finally, the drop remains stationary in the liquid, showing that its specific gravity is the same as that of the mixture. Then, with a urinometer (graduated to 1065 or 1070), take the specific gravity of the mixture, exactly as that of urine is taken, and we have the specific gravity of the drop of blood. The specific gravity of the blood plasma varies very little, except in dropsy from any cause; and in the corpuscles themselves the variable element is the hæmoglobin. Consequently in most non-dropsical patients the specific gravity of the whole blood varies directly as the hæmoglobin. There are, however, certain exceptions. In leukæmia the specific gravity is relatively higher than the hæmoglobin, on account of the preponderating leucocytes. In pernicious anæmia, with high colour index, the hæmoglobin is about two per cent. higher than we should estimate, judging by the specific gravity; and in dropsy we must still use the hæmoglobinometer, as the specific gravity of the plasma is greatly altered.

Counting the red and white corpuscles is sometimes necessary, but it is an eye-destroying occupation, which takes two or three hours to do properly, using the Thoma-Zeiss counter. It is not wonderful, therefore, that many attempts have been made to devise a simpler and quicker way of enumerating the corpuscles. The hæmatocrit was designed with this object, but is not as accurate and reliable in all cases as could be wished. Recently, Dr. Oliver has invented an ingenious little apparatus for estimating the number of corpuscles by their optical effect without actually counting them. Its action is based upon the fact, that if a small measured quantity of blood is gradually diluted with Hayem's solution in a special graduated test tube, and a candle flame is looked at through the mixture, a bright horizontal line is seen when a certain degree of dilution is reached. The line is made up of a large number of minute images of the flame, produced by the longitudinal striation of the glass. With normal blood, the amount of dilution necessary to allow the bright line to be seen is always the same, and can be very accurately fixed, so that a variation of one per cent. in the number of corpuscles can be detected. A pipette holding 10 c.mm. of blood is supplied with the apparatus, and the test tube is graduated thus:—One pipette full of normal blood is gradually diluted with Hayem's solution until the bright line appears. The point to which the column of fluid then reaches is marked 100, and the space between that point and the bottom of the tube, is divided into 100 equal parts. The point marked 100 corresponds to 5,000,000 red corpuscles; 90 = 4,500,000; 80 =4,000,000; and so on, each degree on the scale corresponding to a difference of 50,000 corpuscles.

This method answers well in all cases where the number of white corpuscles is normal (or not excessive).

The average number of white cells per cubic mm. is about 7,500, though it varies greatly; anything between 5,000 and

10,000 being within normal limits. When the leucocytes are in excess, a "Leucocytosis" is said to be present, and as this condition is a very valuable diagnostic sign, it becomes important to be able to say whether a leucocytosis exists or not. When the white cells are very greatly increased in number, it is easy to appreciate the change; but a moderate leucocytosis can only be detected by counting the cells with a Thoma-Zeiss apparatus, using the white cell pipette. Not less than 100 cells should be counted to ensure a fairly accurate result.

The amount and rapidity of fibrin formation can only be judged of by practice. It is well to watch the formation of the network of threads for a few times in normal blood. We shall thus be able to recognise the increased closeness of the network in some inflammatory diseases (notably pneumonia and acute articular rheumatism). It is only necessary to leave a drop of blood under a cover-glass long enough for the air to creep in a little at the edges, to be able to observe the formation of thin straight lines between the corpuscles. These are the fibrin threads, and are best seen with a narrow diaphragm. The information obtainable from a study of fibrin formation is, perhaps, chiefly confirmatory of conclusions derived from other considerations. Yet the notable absence of any increased fibrin formation in malignant disease helps in making the diagnosis between such disease and inflammatory or suppurative mischief.

Having thus described some of the methods most conveniently used in clinical examination of blood, I pass on to consider some of the diseases and conditions in which they give us information of diagnostic or prognostic value.

In malaria, relapsing fever, and filaria disease, the diagnosis can be made absolutely by a simple microscopic examination of the fresh blood, which in each case reveals the characteristic parasite. In enteric fever Widal's reaction (or its absence) gives valuable aid in diagnosis. But the application of this test is not often possible in the country, as it requires the services of a bacteriologist. Perhaps in no other cases is a blood examination more valuable than in the severe anæmias.

Only by such examination can we distinguish between pernicious anæmia, chlorosis, and the secondary anæmia of malignant disease, malaria, and other exhausting maladies. In pernicious anæmia the red cells are very greatly diminished in number, usually falling to about 1,000,000 per cubic millimetre, and the hæmoglobin is often relatively increased, the colour index being high. In chlorosis, even if severe, the blood count seldom falls below 2,500,000 red cells. But the hæmologlobin is always diminished, the colour index being low—0·50 to 0·30. This is so even in milder cases where the number of red cells is almost normal. In pernicious anæmia the form of the red cells is very variable, the discs being oval, flask-shaped, or otherwise distorted; also the average size is increased. In chlorosis, the corpuscles are smaller and paler than normal and usually round. The white cells are generally diminished in number in both diseases. In both are seen a few nucleated red corpuscles, usually normoblasts. But in pernicious anæmia of a fatal type, megaloblasts (or *large* nucleated red cells) appear, and indicate a bad prognosis. It is often important to be able to distinguish the anæmia of malignant disease from pernicious anæmia. In a case which came under my notice, a lady, æt. 58, rapidly became of a lemon-yellow colour, and extremely anæmic, pernicious anæmia being the supposed cause. A blood examination showed 4,000,000 red cells, 38 per cent. of hæmoglobin, and 18,000 white cells, nearly all polynuclear neutrophiles. This leucocytosis, with only slightly diminished count of red cells, denoted a secondary anæmia, and a diagnosis of malignant disease was hazarded. No local symptoms were present at the time, but shortly after the lady died from cancer of the kidney.

Anæmia from tuberculosis, or nephritis, with dyspnœa, may simulate pernicious anæmia. But there is rarely a low count of red cells, the chief sign being a loss of hæmoglobin. Most severe secondary anæmias follow the type of the anæmia of malignant disease, and are accompanied by leucocytosis (except perhaps in purpura, typhoid, lead-poisoning, chronic malaria, etc., where the absence of changes in the shape of the red cells, increased diameter of the same, and high colour index, serve to make clear the diagnosis).

Sometimes leukæmia is mistaken for anæmia of a severe type. But a blood examination (specially by means of the dried and stained film) settles the point at issue immediately. Many patients with leukæmia are not pale, however, the red cells averaging 3,000,000, and the hæmoglobin being only moderately diminished. The characteristic change in splenic leukæmia is the *enormous increase in the number of white cells* (of which the great majority are myelocytes), often so marked that the white cells seem to outnumber the red. Another striking appearance in leukæmia, is the presence of numerous nucleated red corpuscles. In lymphatic leukæmia the white cells are not so numerous, and are mostly lymphocytes, easily distinguished from the large myelocytes of splenic leukæmia. The prognosis is not so bad in lymphatic as in splenic anæmia, as far as my experience goes. Although great enlargement of the spleen and lymphatic glands is found in Hodgkin's Disease, as well as in the two kinds of leukæmia above noticed, the likeness ends there, for the blood is normal in the earlier stages. Later there may be anæmia and sometimes leucocytosis. Thus it is easy, in a case of supposed Hodgkin's Disease, to exclude leukæmia, but not syphilis or malignant disease, either of which might cause similar blood changes or lack of change.

The presence or otherwise of a leucocytosis in acute pneumonia is of diagnostic value. In this disease a leucocytosis is present, usually in direct proportion to the severity of the infection, or rather to the amount of reaction of the organism to the infection. Thus there may be a mild infection with a vigorous reaction, causing a slight leucocytosis. Or there may be severe or moderate infection, with a strong reaction and very marked leucocytosis. Or, lastly, there may be severe infection, attended by feeble reaction, and no leucocytosis whatever. *These last are nearly always fatal.* So that the presence of leucocytosis is no guarantee that the patient will recover, but only shows that the system is making a struggle against the infection. Its absence, however, except in the mildest cases, is a very bad sign. Obscure cases of "central" pneumonia which at first resemble typhoid or influenza, can often be diagnosed by the marked leucocytosis which is present. In typhoid and influenza, if uncomplicated, no increase of the white cells occurs, at any rate, not in the earlier stages. This remarkable absence of leucocytosis also occurs in measles and tuberculosis (when pure and uncomplicated by secondary pyogenic infection.) The only purely tuberculous lesion which is attended by a leucocytosis from the commencement appears to be tubercular meningitis. Mumps and malarial disease are also exceptional in having no attendant increase of the white cells.

In all inflammatory diseases, especially those due to sepsis and pyogenic infections, there is a marked and unmistakable leucocytosis. In septicæmia, pyæmia, abscess, osteomyelitis, peritonitis, appendicitis, otitis—and even in the smaller, local inflammations, such as whitlow—the count of leucocytes rises to 23,000, or 28,000 per cubic millimetre. (The average number in health being about 7,500). The great value of a knowledge of this fact will be felt when a diagnosis has to be made in certain obscure cases, such as the following:—

A boy, suffering from "rheumatism" in the leg, in whom all other symptoms, except a dull aching pain, were slight and doubtful, came under my care for relief of the pain. A blood examination showed a leucocytosis of 26,000. The case was diagnosed as osteomyelitis, and sent for hospital treatment. In a short time abscess formed, and the diagnosis of pyogenic infection was confirmed.

Cabot mentions two cases in which the temperature chart, and symptoms generally pointed to typhoid fever, but in which a persistent and very marked leucocytosis led to the search for an inflammatory focus. Pain, tenderness, or other localising symptom was not present at first, but later on symptoms arose pointing to the liver as the seat of mischief, and it was decided to puncture the organ. This was done, and in each case pus evacuated.

In appendicitis, where the symptoms are obscure, good clinicians are not ashamed to admit that they are occasionally in doubt as to whether the case is one of perityphlitic inflammation or of typhoid fever. In such cases a blood count showing a decided leucocytosis settles the matter, for leucocytosis does not occur in early uncomplicated typhoid. Colic, due to simple obstruction, is also excluded by this same count, as it also does not increase the number of leucocytes. All pyæmic or septicæmic processes are distinguishable from typhoid by the same test—the presence of a leucocytosis in all diseases of the former class. Otitis media has been diagnosed as typhoid, even when Widal's reaction has been absent. In one such case a *post-mortem* examination showed no typhoid, but there was pus in the jugular and lateral sinus. In purulent cases there is a decided leucocytosis, both before and after paracentesis.

In measles a blood examination may sometimes be of service, as the characteristic absence of leucocytosis in a doubtful case excludes scarlet fever, diptheria, or syphilitic roseola, all of which show a decided leucocytosis.

In serous pleurisy there is no leucocytosis, which fact may be of value in distinguishing this disease from empyema, pneumonia, or malignant disease.

In peritonitis there is always a very marked leucocytosis; and that whether it be serous or purulent. This only fails to appear in those very severe and rapidly fatal cases in which the organism is so quickly overwhelmed by the disease that there is no time for reaction to take place. The fibrin network is increased in almost every case. When a diagnosis rests between peritonitis, non-malignant obstruction, malignant disease, hysteria or malingering, the presence of marked leucocytosis with increase of fibrin network speaks strongly in favour of peritonitis. Obstruction or malignant disease may increase the number of white cells, but not the fibrin; and hysterical or malingering cases have normal blood. It is of importance diagnostically to remember that in tubercular peritonitis there is no leucocytosis.

In acute rheumatism there is a moderate leucocytosis, but a very greatly increased fibrin network. In chronic rheumatism there are no special blood changes recognisable by clinical methods.

In all the numerous conditions mentioned hitherto, in which leucocytosis occurs, the kind of white cell present is the polynuclear neutrophil. But there is one disease in which the "eosinophil" variety of leucocyte predominates. In a case of trichinosis, in which there was a moderate leucocytosis 68 per cent. of the cells were found to be "eosinophils"! (The usual proportion of these cells to the other colourless elements being ½ to 4 per cent.)

The leucocytosis which immediately follows hæmorrhage may be marked, but is transient in character, and not so likely, perhaps, to be of service in diagnosis as the diminution in number of the red cells and of the colour index. In severe hæmorrhage the count of red cells may be reduced to 3,000,000, or even 1,500,000, and the hæmoglobin to 40, or even 30 per cent. In cases of suspected internal hæmorrhage from any cause, such as ruptured tube in extra-uterine pregnancy, or ruptured spleen or liver, surgeons may derive valuable information as to the presence of bleeding, and its probable amount and severity, by a blood count. Sometimes also this method will distinguish the condition from peritonitis, obstruction, or strangulated hernia. In cases of severe injury, where "shock" is profound, and the question arises as to whether operation should be delayed or done at once, the point is generally settled by a sagacious estimate of the patient's vitality. There has been hæmorrhage, but no one knows how much, and the "shock" may be due chiefly to loss of blood requiring transfusion, or to cerebral concussion or compression, either of which would be made worse by transfusion. A blood count can settle these questions, and therefore make clear much that is now obscure in such cases.

It is to be hoped that in the future surgeons will often avail themselves of the help which can undoubtedly be derived from simple examination of the blood in cases of "shock" following serious injury.

ON THE CONDUCTION OF THE MITRAL SYSTOLIC MURMUR DOWN THE SPINE: ITS DIAGNOSTIC AND PROGNOSTIC VALUE.*

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THAT Mitral Regurgitation is characterised by a murmur audible at the apex and conducted outwards into the axilla and round to the angle of the scapula is as well known as any fact in clinical medicine; but it is not, I think, so generally recognised that this murmur is often audible over the spines of the dorsal and lumbar vertebræ, and may even be conducted downwards into the pelvic bones. I therefore propose in this paper to draw attention to this physical sign.

The reason for the conduction of the mitral systolic murmur towards the axilla is given somewhat differently by different authors. There can, I think, be little doubt that at least two factors are at work. 1st, the conduction of the murmur along the ribs and chest wall, against which the apex of the heart is pressed during systole. And 2nd, and most important, the conduction of the cardiac murmur through the layer of lung tissue which separates the left ventricle from the lateral chest wall. The greater the hypertrophy and dilatation of the left ventricle the thinner will this layer of lung become, and the more easily will the murmur reach the lateral and the posterior chest wall.

CONDUCTION OF THE CARDIAC SOUNDS TO THE BACK.

Neither of these reasons suffice to explain the loud conduction of this murmur down the vertebral column, which can be observed in a well-marked case of mitral regurgitation. The conduction of the mitral systolic murmur down the spine is due to the anatomical relationship of the left auricle and left ventricle to the bodies of the vertebræ.

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* A Paper read before the Queen's College Medical Society.

On carefully studying the conduction of the cardiac sounds and murmurs over the posterior chest wall, it can sometimes be recognised that they are especially well heard in the left mid-interscapular area over a small area about one inch or more in diameter just to the left of the spine, opposite the fourth and fifth dorsal spines. For making this observation a phonendoscope or similar powerful stethoscope is often needed.

RELATIONSHIP OF THE HEART TO THE VERTEBRÆ.

The audition of the cardiac sounds over this area is, no doubt, due to the proximity of the heart to the chest wall. Under normal circumstances, the lung tissue which intervenes is sufficient to prevent the cardiac sounds from being conducted to the back. When, however, the left auricle and left ventricle are dilated, they push the posterior margins of the lungs aside and come into more or less intimate contact with the bodies of the vertebræ and the posterior chest wall. This may be easily demonstrated *post-mortem* in a case of dilatation of the left auricle, by distending the heart with hard paraffin prior to its removal from the body. On removing the heart after the paraffin has been allowed to cool and harden, it will not infrequently be found that there is a distinct groove on the posterior aspect of the auricle, shewing where it was pressed against the bodies of the vertebræ. Since bone is a good conductor of sound, this intimate contact of the dilated auricle with the vertebral column will ensure that any sounds which may be produced in the auricle during its period of distension, will be well conducted down the spine--in just the same way as the tracheal sounds are often so well conducted by the cervical vertebræ to the back of the neck and the occiput.

These conditions occur in the case of mitral incompetence, for the regurgitating blood distends the auricle while the murmur is being produced. Further, since the axis of the left ventricle is directed somewhat backwards as well as upwards, the murmur-producing stream of blood, on escaping through the leaky valve, will impinge upon that part of the auricular wall which is in most intimate contact with the vertebræ, and thus favour its conduction through them.

CLINICAL VALUE OF THIS SIGN.

We are now in a position to make some estimate of the value of this sign of which we are speaking. In the first place, we can assert that the conduction of a mitral systolic murmur to the back through the bones of the spinal column is evidence that there is a considerable amount of mitral regurgitation, and *ceteris paribus*, the extent to which the murmur is conducted downwards is a fairly reliable index of the extent of the regurgitation.

We may also consider that the loud audition of cardiac sounds in the left interscapular area and over the vertebræ, is distinctly suggestive of the presence of dilatation of the left auricle and left ventricle.

DIAGNOSTIC VALUE.

The conduction of the cardiac sounds to the interscapular area affords us very material help in the, at times, difficult task of distinguishing between a mitral and a tricuspid murmur. I have often known the diagnosis in such a case to be satisfactorily cleared up by hearing the heart sounds pure and free from murmur in the interscapular area by means of a phonendoscope. As the left ventricle and left auricle come into closer relationship with the vertebræ than the rest of the heart, a systolic murmur, if arising in the left ventricle, is sure to be heard at the back, if the cardiac sounds can be heard there with any degree of clearness. The reverse of this does not hold true, because the mitral systolic murmur is not the only one that is conducted to the back.

The aortic systolic murmur is conducted along the line of the aorta, but it is more loudly heard over the upper part of dorsal vertebræ than over the lower, whereas the mitral systolic murmur, when heard posteriorly, is best heard near the fourth or fifth dorsal spines, and rapidly becomes fainter or disappears on passing upwards towards the higher dorsal vertebræ. Again an aueurism of the descending arch or thoracic aorta may give rise to a systolic murmur in the interscapular area.

TRICUSPID SYSTOLIC MURMUR.

In certain cases where there is considerable enlargement of the right side of the heart, without any great corresponding enlargement of the left heart, the right ventricle and right auricle may come to be in such close relationship with the vertebræ that a tricuspid systolic murmur is conducted to the back in the interscapular area. In such cases I have noticed that the murmur is louder on the right side of the spinal column, instead of on the left, as in the case of the mitral systolic murmur. Also there is not much likelihood of confusion, because in cases where a tricuspid murmur is conducted to the interscapular area the regurgitation is usually of so pronounced a type that there is no difficulty in recognising it in other ways.

FALLACIES.

We must, of course, remember that physical signs are rarely, if ever, pathognomonic of any single condition, and in the case now being considered, causes, other than those above referred to, may lead to an increase in the loudness of the cardiac sounds or murmurs as heard posteriorly. Thus, for example, consolidation of the lung, which normally intervenes between the posterior aspect of the heart and the chest wall, may lead to an increase in the loudness of the heart sounds at the back.

Or again, the normal cardiac sounds may be abnormally well conducted to the posterior chest wall through the interposition of a mass of new growth, as in a tumour of the posterior mediastinum. The same result may be produced in tumours of the anterior mediastinum when the heart is pressed against the vertebræ by the new growth. In this case, the probability of a tumour may be suggested by the increased loudness of the tracheal breath sound over the upper dorsal spines, which results from the pressure of the lower end of the trachea or the bronchi against the bodies of the vertebræ.

PULMO-CARDIAC MURMURS.

Finally, I must speak of a sound which appears very closely to resemble a systolic mitral murmur, and which may be very clearly audible posteriorly. I refer to the systolic respiratory puffs which are not infrequently heard over the lower lobe of the left lung in nervous subjects when the heart is acting excitedly; or when the normal relationship of the heart to the lungs is disturbed by deformity of the chest; or by pleuro-pericardial adhesions, and similar conditions.

In the cases referred to, a systolic sound is produced which may most closely resemble a systolic intra-cardial murmur. It is a pulmo-cardiac sound, due in some cases to the pressure of the heart or large vessels upon the bronchi which go to the lower lobe of the lung. One bronchus, in particular, runs close to the lateral aspect of the left ventricle, and it is, I think, quite possible that it might be slightly pressed on by a dilated and excitedly acting heart. In most cases, its true nature is shown by its variation with respiration. It is often only audible during inspiration, and is usually not heard if the breath be held. Cases are, however, by no means uncommon, where this spurious murmur continues even when the breath is held, and then the resemblance to an intra-cardial murmur is very close.

The points of diagnostic importance are—that the point of maximum intensity of this sound is usually *not* at the apex of the heart. It may be an inch or so external to the apex, or the sound may be equally well heard over a considerable area in the lower axillary region.

The anterior margin of the area over which the sound is heard often comes up to within an inch or so of the cardiac area; but the sound is not well heard over the heart itself, as would be the case if it were intra-cardial.

Posteriorly the sound is sometimes very clearly heard, but instead of its being best heard in the mid-interscapular area, and well heard over the vertebræ, it is heard equally well over the greater part of the lower lobe, but especially below the angle of the scapula, and it is not heard over the vertebræ at all.

PROGNOSTIC VALUE.

From what I have said the prognostic value of the conduction of the heart sounds to the interscapular area and down the spine is evident.

If in a case of mitral regurgitation the sound is not well heard in the interscapular area, and is not conducted down the vertebræ at all, the prognosis is good, however loud the murmur may be at the apex. There cannot be much regurgitation without its showing posteriorly.

If, on the other hand, the murmur is audible all down the spine to the lumbar region, the damage to the mitral valve must be considerable, and the prognosis correspondingly grave. Simple loudness of the murmur in the interscapular area without loud conduction down the spine is suggestive of a failing and dilated left auricle.

In conclusion, I do not wish to imply by what I have said, that I expect that the study of the mode of conduction of the mitral systolic murmur to the back will supplant as a method of precision those already in use, such as the careful estimation of the apex beat, the size of the heart, and the general symptoms of the case; but I am certain that it does prove an important addition to our means of estimating the amount of damage which the mitral valve has sustained in cases of mitral regurgitation.

A NOTE
ON THE CAUSATION OF BREATHLESSNESS IN ANÆMIC DEBILITY.

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EVERY one is familiar with the fact that the anæmic girl is breathless. It is, as every medical man is aware, the symptom for which she most generally seeks advice, chiefly because it incapacitates her in the struggle with others for her daily bread.

There are certain points about this breathlessness which are suggestive:—Firstly, it appears on any sudden exertion, such as running upstairs. In the second place, it is usually not nearly so marked if the exertion be gradually undertaken, although on account of the general muscular debility no exertion can be long maintained, and lastly, there are no attacks of dyspnœa so long as the patient is at rest in bed in the recumbent position.

In association with this characteristic breathlessness we have certain well recognised physical signs and anatomical conditions, and of chief importance is the state of the heart and pulmonary artery, which Dr. A. Foxwell has so well indicated in his masterly and convincing Bradshaw Lecture. Briefly, there is dilation of the pulmonary artery and of the conus arteriosus of the right ventricle, together with an accentuated second sound over the pulmonary artery. The left ventricle is very little affected.

These conditions may be recognised during life by an increase upwards of the vertical superficial cardiac dulness. Normally, dulness commences at the fourth costal cartilage, but in the heart of anæmic debility, the dulness often extends up to the third cartilage, and even at times, up to the clavicle on the left side. At the same time, the apex beat is raised and to some extent pushed outwards, a fairly common site being fourth space just internal to the vertical nipple line. This upward dilation does not occur in those cases of anæmia which remain entirely in bed and recumbent after the onset of the malady, as is well seen for instance, after a severe attack of typhoid fever, or after a bad hæmatemesis. As soon, however, as these patients convalesce and begin to get up and exert themselves, the dyspnœa on exertion sets in, the pulmonary artery and conus arteriosus dilate, and the pulmonary second sound becomes accentuated, all indicating increased tension in the pulmonary artery.

Another now well-established fact is that there is a certain amount of vasomotor paresis in anæmic debility. This was well pointed out by Dr. Oliver in his Croonian Lectures delivered before the Royal College of Physicians in 1896. He pointed out that whilst in health the calibre of the radial artery at the wrist, as measured by the arteriometer, increases on assuming the erect position and lessens again on recumbency. The opposite condition prevails in anæmic debility—or in other words gravity governs the blood pressure in debility, whereas the heart and vasomotor system over-rule gravity automatically and at once in health.

I have examined many anæmic and debilitated patients with the arteriometer and almost invariably find this to be the case, as did Oliver. There is perhaps an exception in the case of certain not very rare cases of anæmia in which there is high peripheral tension, for in these cases there is frequently no postural variation so long as the tension remains high.

If, however, a patient with a reversed postural variation is allowed to remain standing for a few seconds before the observation is made, a physiologically correct increase may often be obtained, shewing that the vasomotor control is not abolished, but only slow in its development.

So far then the established facts of anæmia shew that a considerable strain is thrown on the right ventricle and pulmonary artery, and that there is a systemic vasomotor paresis.

Now it is obvious that a sudden contraction of the pulmonary arterioles would raise the blood pressure in the pulmonary artery, but unfortunately we know experimentally very little about changes in calibre of the minute arterioles in the lungs.

We do know, however, that circular muscular fibres surround these small arteries, and Foster tells us that the anterior and posterior pulmonary plexuses are joined by sympathetic filaments derived from the second, third, and fourth thoracic ganglia, and there is evidence that some of these fibres are vaso-constrictor fibres for the pulmonary vessels. As in the splanchnic area so in the pulmonary there is no proof of the existence of vaso-dilator fibres.

Granting then that there is a supply of vaso-constrictor fibres to the lungs, how are they likely to act normally? It would seem obvious that, when venous blood stimulates the medulla, the impulses to the respiratory centre and the heart would be assisted by a dilation of the pulmonary vessels, and this would be brought about as in the splanchnic area by an inhibition of the vaso constrictor impulses which are constantly travelling along all vaso-constrictor nerves. In anæmic debility, however, we have shown above that the dilation of arterioles is delayed, and arguing by analogy the same is probably the case in the pulmonary system, and the result is that all the extra blood which has to be forced through the lungs on exertion must depend on right ventricle force, unassisted as in health, by a dilated periphery, hence the increased pulmonary second sound, the dilated pulmonary artery, and conus arteriosus. But in the systemic circulation we noted that after a time the arterioles did dilate, and the same is probably the case in the pulmonary system, for we often observe that graduated exercise, even when entailing considerable expenditure of force, is not nearly so productive of dyspnœa as is sudden effort. No prolonged exercise, however, can be performed by such debilitated subjects, on account of the general muscular sense of fatigue produced and the exhaustion of the feeble nerve centres.

We remarked too, that dyspnœa is not produced so long as the patient after production of the anæmia has not exerted herself, for only slight changes in the pulmonary calibres are under such circumstances demanded, and what changes are necessary may be gradually performed and a summation of impulses allowed to act on the medullary centre without the consequent delay much affecting the heart. Notwithstanding this, we do often get an accentuated second sound in the pulmonary area in debility, and, I think, apart from left ventricle failure, in at all events, some cases, and it is possible that the anæmic blood irritates locally, to some extent, the small pulmonary arterioles in the same way that the blood in renal disease irritates the systemic arterioles; but this latter resistance plays, in my opinion, a very subordinate part in right ventricle failure, for in the systemic circulation this constant frontal resistance produces a well marked hypertrophy of the left ventricle, and no analogous change is usually observable, after even prolonged anæmia, in the right ventricle.

As supporting this explanation of anæmic dyspnœa by vasomotor failure, we may remark, that this disease is prevalent in the female sex, whose vasomotor system is far more unstable than that of the male, and also, that it usually occurs at puberty, when this system (as is evidenced by the tendency to blushing and other vascular phenomena) is unusually active.

It may be argued however that this explanation should involve the left ventricle as well as the right, for we *know* vasomotor delays occur in the systemic circulation, whereas we may only *infer* them to occur in the pulmonary circuit.

In answer to this I would urge that the pulmonary circuit being much smaller, back-working is much more felt by the heart, and also that there is no splanchnic nor cutaneous reservoir in the pulmonary circuit, and these are most important safety valves to the general circulation, but have no homologues in the lungs.

Again, in the lungs, any resistance in the case of anæmia will probably affect all arterioles alike, but in the systemic circulation various tissues exist, and it is improbable that all will be at once affected similarly.

Looking at the whole vasomotor system from a developmental aspect, it may be noted that its mechanism is a late development, and hence, has been less modified by time than that ancient muscular bag known as the heart, and we may expect this to be especially the case in such an organ as the lungs, which have served such various purposes as the wings in the insecta and the swim bladder in the fish.

BIBLIOGRAPHY.

Foxwell, A. On Dyspnœa, 1893.
Foxwell, A. The Condition of the Vascular System in Anæmic Debility, 1892.
Foster, M. Text Book of Physiology.
Oliver. Croonian Lectures, *The British Med. Journal*, Vol. I., 1896.
Allbutt. System of Medicine.
Darwin. Descent of Man.

REPORTS OF CASES.

A CASE OF POISONING BY HYDROCHLORIC ACID WITH PERFORATION OF THE STOMACH.

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A strong, well-developed child, 2½ years of age, was brought up to hospital with a history of having swallowed an unknown quantity of spirits of salt. The acid was in an ordinary ginger-beer bottle, and the child evidently drank it in mistake for ginger-beer. The bottle was brought up and was found to contain common commercial hydrochloric acid.

When seen (about twenty minutes after taking the poison), the child was screaming and writhing about, evidently in great pain. There was no staining or erosion of lips, tongue, or mouth. It vomited several times, the vomit consisting of dark altered blood and some mucus. The vomit did not give an acid reaction.

Calcined magnesia was at once administered and child put to bed. To relieve the pain, a starch enema containing laudanum ♏10, was given—this was retained. In spite of the above treatment, supplemented by strychnine injections and brandy (per rectum), the patient gradually sank and died in a state of profound collapse six hours after drinking the acid. There were no laryngeal symptoms throughout.

Post-mortem, eight or ten small perforations were found in lower part of stomach midway between cardiac end and pylorus; the holes varied in size from that of a three-penny piece to a pin head. The edges were very thin and ragged. The stomach contained a quantity of dark blood, and there were eight or ten ounces of blood in the peritoneal cavity. The mucous membrane of stomach was much blackened and eroded, and there were many subperitoneal hæmorrhages.

The mucous membrane of duodenum was blackened for about two inches from pylorus. There was no staining or erosion of mucous membrane of tongue, or œsophagus. The charring commenced exactly at the cardiac orifice, and involved the whole of the stomach.

This case is interesting, as showing the great destruction of tissue that may follow poisoning by hydrochloric acid, and yet that there may be an entire absence of indications in the mouth and on the lips that a corrosive has been swallowed. It also emphasises the necessity for extreme caution in the use of the stomach tube in such cases. The wall of the stomach was so thin and so rotten that even the softest tube would almost certainly have made a hole in any part of its floor.

TWO CASES OF DIAPHRAGMATIC PLEURISY SIMULATING PERFORATION OF STOMACH.

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Case 1.—In June 1898, at about half-past six one evening, I was asked to see in consultation an anæmic girl, aged 20, with the following history:—A few hours previously she had been suddenly seized with a most violent pain over the stomach. I learnt that for some weeks she had been troubled with pain after her meals and had suffered with all the usual symptoms of anæmia. On examination, I found the breathing entirely thoracic, and the abdomen hard and acutely tender to palpation especially over the epigastric area. There had been no vomiting, and the pulse though weak was soft and of fair volume, 90 per minute. My opinion was asked as to the advisability of operation. I was in favour of waiting, as the absence of marked symptoms of collapse and the condition of the pulse seemed to be against perforation. Early the following morning I saw the patient again. She had had a very bad night, was in much pain, and looked very ill and distressed. Temperature 101, pulse 120. Abdomen still hard and tender to palpation. On further examination, I found a patch of pleuritic friction over the lower portion of left lung, anterior aspect. We agreed that probably the symptoms were due to diaphragmatic pleurisy. This turned out to be the case, the patient developed a well marked pleuropneumonia with pericarditis, and after some weeks' illness eventually made a good recovery.

Case 2.—In June of the present year, about 10.30 p.m., I received an urgent message to attend a young woman, æt. 25, who had recently been treated for anæmic gastralgia with vomiting. This patient almost immediately after taking a poached egg was seized with a violent pain in the region of the cardiac end of the stomach. An hour or two later I saw her; I found her lying on her back with the legs drawn up, complaining of a very severe pain over the left hypochondriac and epigastric regions, the breathing was entirely thoracic, the abdomen was rigid and retracted, and there was acute tenderness on palpation over its upper part, there had been no sickness, and the pulse was of fair volume, moderately soft, and 90 per minute.

She was seen again about 7.30 a.m. the following morning; she had had a very bad night, was still in much pain, abdomen hard and retracted, pulse small, 96, using the abdominal muscles slightly. Doubtful pleuritic friction heard near the cardiac end of the stomach. Twelve hours later the pulse had gone up to 120, Respirations to 50, Temperature 101. She developed a well marked attack of pleuro-pneumonia on the left side, and a fortnight later was making good progress towards recovery, when she suddenly and quite unexpectedly died while lying quietly in bed under the immediate observation of her nurse, who was sitting by her side. I was unable to obtain permission for an examination of the body.

Remarks.—In both these cases the previous history of anæmia with gastric symptoms, vomiting and pain after food, pointed strongly to the possibility of gastric ulceration, while the sudden onset of acute pain, the marked abdominal tenderness, the entire absence of abdominal respiration, etc., were strongly suggestive of perforation. On the other hand the absence of marked collapse, the favourable condition of the pulse, and absence of vomiting justified one in waiting and watching.

MEDICAL ABSTRACTS.

OCULAR TRAUMATIC HYSTERIA.

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Borel (*Annales d'Oculistique*, January and April, 1900) describes hysterical affections of the eye as monosymptomatic or polysymptomatic. Erythropsia, spastic astigmatism, mydriasis, epiphora with or without facial hemihyperidrosis, spastic strabismus, or nystagmus may exist alone and constitute a form of monosymptomatic hysteria. The monosymptomatic form is perhaps exceptional in traumatic cases. The eye may be affected secondarily to another organ primarily injured, or a slight injury of the eye may set up an intense general hysteria. The extent of the injury to the eye bears no definite relation to the intensity of the consequent hysteria, in fact the ratio tends to be inverse, and grave injuries of the eye are seldom followed by any nervous symptoms. Motor troubles of the eye may be the first sign of a nervous affection and may long precede the more definite signs of hysteria, such as contracture, anæsthesia, erythropsia, polyopia, etc.

The author records five fresh cases of hysterical eye affections. The first occurred in a male, watchmaker, æt. 31, who was injured in a railway accident. For two months after the accident he was unable to read. Then he developed erythropsia, and two months later contraction of the fields of vision, astigmatism from irregular spasm of the ciliary muscle, photophobia without ocular lesion, nervous excitement, and horrible dreams, which prevented resumption of work for a year.

The second case was that of a female dial painter, æt. 24, who received a slight blow on the right brow during a railway accident. She resumed work after the accident, but some days later was obliged to leave it off in consequence of a feeling of intense asthenopia. Her refraction was normal and RV $= \frac{6}{9}$ LV $= \frac{6}{6}$. A month later she had complete left anæsthesia, contraction of the right field of vision and the right eye showed spastic astigmatism and epiphora. The latter symptoms soon disappeared and somewhat later all the other symptoms, leaving only a remarkable change of disposition, which estranged her to her own family.

The third case was that of a young girl of fourteen, who had a slight blow on the left eye. A drop of atropine produced an intense and persisting mydriasis of the left pupil, and fifteen days later spontaneous mydriasis appeared in the right eye, and the left eye became amaurotic with abolition of pupil reflexes. These were followed by left hemianesthesia, congestion of the face, epiphora and monocular diplopia. Then graver symptoms —vertigo, delirium, permanent state of excitement, violent vomiting with constipation, lasting fifteen days—appeared. After this she improved, but simple hysteria with hemianesthesia and contracted visual fields remained for some time.

The fourth case occurred in a female watchmaker, æt. 22, who had been in a railway accident, but not injured beyond a shaking. She resumed her work, but later complained of pleurodynia and later of sciatica, and she became low-spirited and restless, and her face became reddish blue from vasomotor congestion. The conjunctiva and optic discs also became congested. Four months later $V = \frac{6}{6}$ c. – 1·5 in each eye; double epiphora and hyperamia of optic discs increased during attacks of vasomotor flushings of the face. She had intense asthenopia, supraorbital neuralgia, exaggerated reflexes, spastic myopia, and she became irritable in disposition and weak in moral character. Four or five months after the accident she had contracted visual fields, right hemianesthesia with tender hystero-genetic points along the vertebral column. Five months later she had complete left anæsthesia, left monocular diplopia with intermittent erythropsia, contracted visual fields, and left hemianosmia. Three months later symptoms had nearly all disappeared. Hypnotism, electricity, change of air and diet were the methods of treatment employed, but notwithstanding all efforts, asthenopia and certain nervous troubles persisted one year after the onset of symptoms, and in two of the cases the change of disposition led to family quarrels, absurd marriages, and inexplicable moral conduct.

Dubois of Berne, has shown a case of hysterical convergent strabismus, following a railway accident, and which disappeared as suddenly as it came on. This form of strabismus is of the same nature as that produced artificially by hypnotism, and is identical with the spontaneous hysterical monoplegias described by Charcot. In the cases recorded, it is well to note, that the eye symptoms preceded the onset of general hysterical symptoms, that even the eye symptoms did not appear until the patient had resumed work, there being a short incubation period as it were, and that the acme of the illness came on six to nine months after the accident. Fright of itself does not account for the production of these cases, though it may be an element in the causation, as evidenced in the (5th) case of a robust male watchmaker, aet. 21, who had an F.B. on the cornea, and after its removal showed, sometime after, paresis of ciliary muscle with mydriasis, asthenopia and insufficiency of convergence, and later and at different times, erythropsia, epiphora, blepharospasm, monocular diplopia, nystagmus, hyperæmia of the fundus, ptosis and insomnia. About six months later, the eye symptoms were—left epiphora, contraction of the fields of vision for white and colours (concentrically), left hemierythropsia, and left monocular diplopia and micropsia; to these were added left testicular hyperæsthesia, bringing on hysterical attacks on slight pressure, right hemianesthesia, loss of taste and smell on the right side, left facial hemihyperidrosis, painful area over spine, loss of sexual desire, and disagreeable dreams and inability to sleep for more than about one quarter hour every night. A fortnight later the symptoms came on always in the same order, viz.:— (i.) Asthenopia. (ii.) Micropsia. (iii.) Monocular diplopia on the left side. (iv.) Hemierythropsia. (v.) Amblyopia and even monocular amaurosis. (vi.) Epiphora with paresis of the motor nerve of the face. (vii.) Paresis of accommodation. (viii.) Left facial hemihyperidrosis. Reflexes of limbs normal except for abolition of right cremasteric reflex and a little diminution of the right muscular sense. There was now complete right hemianesthesia for all skin sensations with left hemianosmia and loss of sensations of touch and taste over the left half of the mouth, palate, and tongue, *i.e.*, a crossed sensory anæsthesia. Later there was loss of sexual desire and diminution of right anæsthesia and some left hyperæsthesia, whilst his general condition and sleep improved. This advantage was however, lost after a demonstration of the case before a medical society, when insomnia recurred and the patient developed a trembling of the right hand, whilst the anæsthesia of special sensation along with the contracted field of vision oscillated from one side to the other, and he developed a right equinovarus, due to contracture which persisted at night and prevented him from sleeping or dressing himself. He also established a facial hemispasm with which occasionally there was associated a squint on the same side and elevation of the angle of the mouth and brow. The diaphragm and chest muscles became implicated in this contracture, giving rise to attacks of apnœa lasting about six minutes with short interruptions. When fatigued he developed monocular diplopia with hemierythropsia, and the left eye became amaurotic at times. Trembling persisted, and his writing resembled that of a case of paralysis agitans, and after a prolonged examination it became quite illegible. The trembling increased during the performance of voluntary acts, and during excitement or emotion; but contrary to organic tremblings, it was confined to or predominated on one side of the body. Some weeks later, sensibility returned to the skin surface centripetally, and the anæsthesia of the mouth, tongue, and palate, disappeared about the same time, leaving anæsthesia of the trunk and the proximal areas of the limbs as well as of the cornea and conjunctiva. The contracture of the calf and occasionally of the pectoral muscles persisted for a fortnight longer, and the hemianesthesia which had become transferable spontaneously, under magnet or suggestion, became more and more limited until all disappeared in about a month, and he felt morally and physically cured, nine months after the first onset of symptoms.

The *general considerations* of these cases include the responsibility of Insurance Companies, who are naturally disposed to regard them as cases of simulation. In estimating compensation the possible development of the most severe form of hysteria after the most insignificant injury in a previously healthy individual lasting for many months must be taken into consideration. It should also be remembered that in the traumatic hysteria of railway accidents the nervous lesion is almost always grave and prolonged, and when there is added a loss of personality and transformation of the whole moral individual, that disease is one of exceptional gravity. In the matter of differential diagnosis, the presence of oculo-motor troubles along with spasm of groups of muscles in other parts of the body, with the presence of spots or zones, which react to pressure, either bring on (spasmogenic) or arrest (spasmofrenatric) the spasms, would lead us to be on the look out for hysteria.

The *symptoms* in these cases are classified as follows:—

SECRETORY AND VASOMOTOR PHENOMENA OF OCULAR HYSTERO-TRAUMATISM.

A.—*Loss of sexual sense and arrest of seminal secretion.*—This is associated with a loss of manliness—both moral and physiological—and the development of an emotional sensitiveness quite unlike the previous personality. In the female, suppression of the menses may represent a corresponding manifestation of hysteria. In other cases, the intestinal and renal secretions may be partially or almost completely suppressed and may appear to find compensation in increased secretory activity of the uterine and gastric mucous membranes, and possibly of the sweat and salivary glands.

B.—*Hysterical Lachrymation.*—This is often preceded by conjunctival dryness perhaps lasting a long time and forming a most distressing symptom. It is generally unilateral, or when bilateral is more marked on the side which is anæsthetic, and has the more pronounced contraction of the field of vision. It is generally associated with blepharospasm, conjunctival anæsthesia and spasm of accommodation and very often with many of the other hysterical symptoms previously enumerated. As a rule the trouble is not aggravated by exposure, in fact it generally improves out of doors and increases in the house, and there may be an entire absence of emotional tears. The best treatment is that calculated to gain the confidence of the patient; in most of the recorded cases treatment by suggestion seems to have been eminently satisfactory. Surgical procedures are absolutely contraindicated, and operations such as ablation of the lachrymal gland are calculated to aggravate the disease locally and generally.

C.—*Blue Œdema (of Charcot) with Hysterical sweat. Hysterical Hemihyperidrosis.*—On rare occasions the integuments assume a red coloration, which becomes bluish and accompanied by a sensation of cold, these parts having at such times a temperature actually lower than the rest of the body. Hysterical sweats are generally limited to the anæsthetic side, though not invariably. In the authors fifth case, this condition could be artificially produced by dazzling the eye or even by suggestion. In these cases the quantity of urine secreted is often below normal and sweat contains a considerable amount of urine, and it has been noted that the sweating is more free in winter, and especially during severe cold, than during warm weather.

Sanguineous sweats (hæmatidrosis) and tears, resulting probably from the spontaneous ecchymoses, without apparent lesion, met with in hysterical patients, have been recorded, and no doubt the sweats and tears of blood of the saints of the middle ages are to be explained in the same way. In some cases the blood oozes out around the roots of the hairs, eyelashes, and eyebrows, and may be associated with hæmorrhages under the conjunctiva or into the anterior chamber, or with auricular hæmorrhage. The hysterical nature of these hæmorrhages have been proved by their disappearance during hypnotic sleep (Rémond). Hysterical facial hemihyperidrosis has seldom been recorded previous to the author's report, and only in cases with bad neuropathological personal and family histories. Emotions and other psychical causes, as well as suggestive and luminous stimulation, can provoke or produce great exacerbations of this condition, and these characteristics distinguish it from unilateral facial perspiration, said to be provoked by emotion or fatigue in cases of Syringomyelia (Lamacq).

D.—*Facial and Papillary Hysterical Vasomotor Troubles. Optic Pseudopapillitis. Hysterical Pseudo-Meningitis of Ocular Traumatic Hysteria.*—The Hysterogenetic zones are often situated on the hairy skin, and the pain in these areas may be excessively severe (hysterical claw), giving rise to insomnia, vomiting, shivering, digestive trouble, and even fever (Briquet)—symptoms which are easily mistaken for meningitis. The presence or absence of pupillary symptoms does not help much in the differential diagnosis, as there may be an initial mydriasis in the hysterical cases, and there may even be papillary and peripapillary œdema, retinal congestion, dermatographism, and diplopia from strabismus, with slow pulse and constipation, thus simulating in almost every detail the organic form of the disease. It is highly probable that most of the cases diagnosed as Tubercular Meningitis, and which have recovered, were of a hysterical nature. As there is no fundus lesion pathognomonic of hysterical amblyopia, the differential diagnosis must be made by taking into consideration all the details of the case, and not by reference to any special symptom affecting a special system.

MOTOR PHENOMENA IN OCULAR TRAUMATIC HYSTERIA.

A.—*Hysterical Nystagmus.*—Conclusive proof of the existence of nystagmus in hysteria has dispelled the prevalent idea of its being a pathognomonic sign of disseminated sclerosis, and has disproved Charcot's statement that "Nystagmus is not found either in hysteria or tabes." The Nystagmus further resembles that of disseminated sclerosis in that it is increased on fixation cf an object, or on making a conscious effort. It may be the initial symptom of hysteria, and may be accompanied or followed by other evidences of the neurosis, particularly blepharospasm, ptosis, mydriasis, hysterical astigmatism, monocular polyopia, &c. In the cases reported it has been amenable to treatment by suggestion. Laufenauer has succeeded in producing nystagmus artificially in hysterical patients by the means of a tuning fork. The results obtained varied as follows, according to the force with which the tuning fork was struck. 1, only closing of the lids with slight twitchings; 2, a louder noise produced spastic closure of the lids; 3, nystagmus. 4, combination of 2 and 3.

B.—*Hysterical Insufficiency of Convergence.*— This symptom may exist alone or be accompanied by various other hysterical troubles, but it can in no way be considered distinctive of hysteria as it is found in many nervous affections, such as Graves' disease, disseminated sclerosis, locomotor ataxia, neurasthenia, &c. In hysteria, the amplitude of convergence may be reduced to three metre angles, whilst the excursions of the eye measured separately in the field of monocular fixation are normal, showing that it is a true paresis of convergent function. It will be found to be present in many cases of traumatic hysteria if looked for, and often explains the asthenopia which such patients complain of.

C.—*Hysterical Blepharospasm.*—This orbicular spasm may be clonic or tonic, and so intense that it causes entropion, or so slight that it is frequently confounded with paralytic ptosis (Parinaud). It may be a precursory symptom of general hysteria, or form one of the monosymptomatic types. No doubt, many so called reflex blepharospasms and ptosis resulting from irritation of branches of the infra-orbital and other nerves, should have been diagnosed as hysterical.

D.—*Hysterotraumatic Strabismus.*—Resembles in every way the artificial strabismus produced by the hypnotism of hysterical patients. The case reported by Dubois is a typical case of the kind.

E.—*Glossolabial Facial Hemispasm.—Hysterotraumatic facial oculo-glosso-labial Hemispasm.*—Unilateral contracture of the muscles of expression is one of the most curious types of hysterical spasm. The motor muscles of the globe may participate in the facial spasm, giving rise to a spastic strabismus. The tongue when protruded is deviated towards the side of the contracture. The contrast between the two sides of the face may be so marked as to give one the idea of a facial paralysis on the unaffected side.

F.—*Hysterical Facial Paralysis of the Orbicularis.*—This is very rare. In the cases recorded, it has only amounted to an inability to close the affected eye as firmly as the other.

G.—*Hysterical Astigmatism.*—Landolt was the first to draw attention to the possibility of such a condition, in his paper on "Hysterical contractures and paralyses of the ocular muscles and their artificial production by suggestion and on hysterical astigmatism," in 1887. It is due to the partial contracture of the ciliary muscle, and though vision is temporarily improved by wearing a cylinder, the relief is not permanent, nor is it any greater than that given by any other glass, or a cylinder in any other axis. The amount of astigmatism varies in different patients and even in the same patient at different times. The eye recovers its normal state when the hysterical condition disappears.

H.—*Hystero-Traumatic Paralysis of accommodation. Insufficiency of accommodation. Irritative weakness of accommodation.* —Paralysis of accommodation may come on independently of mydriasis, whereas in organic disease this dissociation seems questionable. A certain degree of accommodative paresis is a common phenomenon in hysteria. Even in accommodative spasm and intense blepharospasm the amplitude of accommodation is markedly reduced, and consequently the hysterical eye has a most characteristic incapacity for work especially of a finer kind. There seems to be a combination of paresis and of spasm of accommodation in hysteria, in which sometimes the paralysis, sometimes the spasm takes the upper hand, so that symptoms of contracture and amyosthenia change about according to the caprice of the disease. If unassociated with mydriasis, the pupils may be small and react promptly to light and convergence. Chibret found 38 cases of hysterical paralysis of accommodation, which took from one to four years to get well.

I.—*Hystero-Traumatic Mydriasis.*—This may be a prominent symptom and even persist as an isolated phenomenon long enough to form a type of monosymptomatic hysteria. It resembles atropine mydriasis in every detail, and therefore all pupillary reactions are lost. Owing to this tendency to mydriasis it is well to avoid the use of atropine in hysterical patients, as it may be the means of setting up a prolonged mydriasis of a hysterical nature. When associated with nystagmus or other cerebral symptom it may easily be mistaken for meningitis or apoplexy. Hysterical mydriasis is more amenable to treatment by suggestion than by eserin, and in some cases it can be reproduced by suggestion some time after it has disappeared.

J.—*Hystero-Traumatic Spasm of Accommodation.*—Spasm of accommodation sometimes accompanies hemifacial spasm or blepharospasm, or it may come on independently after an injury. It may be associated with diminished amplitude of accommodation—spasm for distant vision and paresis for near vision. It simulates true myopia, but its characteristic is that the patient cannot bear correcting glasses.

K.—*Diverse Hystero-Traumatic Contractures.*—These may affect any of the body muscles, *e.g.*, those of the leg giving rise to talipes equinus.

VISUAL PHENOMENA OF OCULAR TRAUMATIC HYSTERIA.

A.—*Red Vision or Erythropsia.*—This is one of the symptoms which hitherto has generally passed unobserved in hysteria, but it should be considered as a hysterical symptom although it can not be differentiated from the erythropsia due simply to aphakia. Whenever erythropsia is found, especially if dazzling does not exist as a causal factor, one should always think of hysteria, which may be monosymptomatic in that case. Red vision is common in traumatic hysteria, and is liable to be brought on by peripheral excitation, *e.g.*—dazzling of the retina, central excitation, anger or laughing, fright or fatigue When nervous ness is associated with aphakia, we may safely say that both causes are combined in the production of erythropsia. From the facts that the erythropsia may be confined to one eye and even to one-half of the visual field of that eye—that it is often associated with sensory and motor troubles evidently of central origin, and with such central symptoms as monocular bicoloured diplopia,—it must be assumed that this red vision is of central origin and of psychical nature.

B.—*Hystero-Traumatic Monocular Diplopia.* — *Bicoloured monocular polyopia of central origin.*—Parinaud thinks that this diplopia has its seat in the eye itself and is due to a refractive error, and not to a sensory aberration of nervous origin. But as such a condition cannot be produced experimentally, and as no lenticular changes can give rise to bicoloured monocular polyopia, we cannot entertain that theory. Moreover, monocular diplopia may coexist with mydriasis and paralysis of accommodation. Any relief by glasses or atropine is due more to suggestion than to the mechanical means adopted, and any other glass (plain or coloured) or drop would act equally well.

Parinaud also says that the diplopia exists only at a distance of 10 to 15 centimetres, but in the cases reported in this paper it existed for all distances. Monocular diplopia should be a valuable sign for the differential diagnosis of hysteria. It is found in most cases of hysterical pseudotabes and along with acromatopsia and contraction of the visual field, form the most important symptoms from a diagnostic point of view, apart from motor co-ordination, gastric troubles, vesical paresis and abolition of reflexes, which are pathognomonic signs of lesions of the posterior column.

C.—*Hystero-Traumatic Micropsia and Megalopsia.*—Hysterical amblyopia is often associated with micropsia. A similar association may be found in the monocular diplopia, the red image being smaller than the white. It may be met with as much with paresis as with spasm of accommodation, of which it is independent; in fact it is purely a psychical symptom.

D.—*Hystero-Traumatic Photophobia.*—This may be a form of hysterical hyperæsthesia and is not uncommon after traumatisms. It may be intense after slight injury, and be associated with blepharospasm and nystagmus.

E.—*Hystero-Traumatic contraction of the Visual Field. Amblyopia, Scotoma, Hemianopsia and Blindness.*—All these have been indicated in the cases recorded and need no further description.

SENSORY PHENOMENA OF OCULAR HYSTERO-TRAUMATISM.

A.—*Supra-Orbital Neuralgia.*—This is a very common symptom and may occur after a slight injury. It is best treated by hypnotism.

B.—*Loss of muscular sense in the ocular muscles.*—Such a condition would explain the difficulty to accommodate and to turn the eyes or converge.

C—*Anæsthesia of cornea and lids.*—A symptom well recognised since the time of Fontaine.

PSYCHICAL PHENOMENA OF OCULAR HYSTERO-TRAUMATISM.

A.—*Sexual.*—Sexual feeling may be lost or perverted, and sexual secretion abolished. The moral being may be entirely changed.

B.—*The Character* is changed for the worse in all cases; dreadful dreams, insomnia, distress day and night, combine to aggravate his general condition.

Prognosis.—It the prognosis of ocular hystero-traumatism is good as regards ultimate result, it is grave as regards duration. It may take years to disappear, and the duration has no regard to the intensity of the lesion. Even after apparent recovery periodical paralyses of certain nerves may persist for some time longer.

Treatment.—The disease being psychical, its treatment ought also to be exclusively psychical. These patients cannot bear the shock of operation, or even physiological shocks such as parturition. All operations are therefore absolutely contra-indicated. Surgery when successful only acts through the medium of suggestion. Castration, ovariotomy, &c., in hysteria, would be as criminal as the excision of hysterical joints.

CONCLUSIONS.

1. Ocular Hystero-Traumatism is more common than statistics would lead us to believe.

2. Erythropsia, hemierythropsia, spastic astigmatism, monocular diplopia, spastic strabismus, nystagmus, mydriasis, epiphora with facial hemihyperidrosis, oculo-glosso-labial hemispasm, may each exist alone and constitute a form of monosymptomatic hysteria.

3. Visual phenomena, such as erythropsia, monocular diplopia, and vasomotor symptoms, such as epiphora and facial hemihyperidrosis can only have a cerebral cortical origin, and not retinal, lenticular, or peripheral.

4. Ocular hysterotraumatisms often constitute grave forms of hysteria, even in people with no previous neurotic history. This is especially the case in "Railway spine."

5. Hysterotraumatic strabismus is the same as the artificial strabismus produced by hypnotic suggestion.

6. Even the vasomotor phenomena of hysterotraumatism can be reproduced artificially by suggestion as well as by provoked asthenopia (strong light, or prolonged reading).

7. A minimal ocular hysterotraumatism may give rise to a general hysteria of long duration, even in a man of advanced years. These slight eye accidents, even without frightening the patient may have for their effects, an incapacity for work, lasting for a year or more, especially in men, and be followed by sexual troubles, general tremors, contractures, anæsthesia, sensory symptoms, loss of sleep, appearance of spasmogenic zones, myopia, mydriasis and photophobia of long duration

8. Hysterical kopiopia occurs in the following order of intensity:—

(*a.*) Micropsia.

(*b.*) Bicoloured monocular diplopia—images more or less separated, more or less distinct, and of variable horizontal positions.

(*c.*) Erythropsia or hemierythropsia.

(*d.*) Amblyopia which may end in a complete amaurosis.

(*e.*) Epiphora with paresis of vasomotor nerves of the face, commencing with the red-blue œdema of Charcot.

(*f.*) Facial hemihyperidrosis.

(*g.*) Mydriasis with inconstant paresis of the pupil.

9. The external vasomotor phenomena causing the epiphora and hyperidrosis may attack the internal membranes of the eye and simulate an organic affection, especially in cases of hysterical ophthalmoplegia interna and hysterical pseudomeningitis.

10.—From a therapeutic point of view, every operation is contraindicated, and the diathesis of contracture must be combated and not the accidental locality which the disease may affect.

SURGICAL ABSTRACTS.

BY LEONARD GAMGEE, F.R.C.S.

The Elevated Head and Trunk Posture in the Treatment of Diffuse Septic Peritonitis. By George R. Fowler, M.D.—(*New York Medical Record*, April 14, 1900.)

Fowler determined to adopt the elevated head and trunk posture as a routine procedure after operation for diffuse septic peritonitis, for the purpose of facilitating the passage of septic fluids from the general peritoneal cavity to the pelvis, from which locality it could be more readily removed by drainage. He insists that the head of the bed should be raised at least twelve to fifteen inches, a pillow being folded beneath the flexed knees in order to prevent the patient sliding down the bed. The pillow is prevented from sliding by a piece of stout bandage being passed through at the folded portion, and secured to the sides of the bedstead. The treatment was carried out in nine consecutive cases, the patient recovering in each instance. In each case it was noticed that, so long as the head of the bed was kept raised, the patient passed flatus, and did not vomit. In two of the cases the head of the bed was temporarily lowered, the result each time being that the patient ceased passing flatus, and commenced to vomit.

A New and Simple Method of Sterilizing Catgut. By C. Elsberg, M.D.—(*New York Medical Record*, April 16th, 1900).

Elsberg gives the following directions for the carrying out of his process:—

1. Free the catgut from fat by soaking it for 48 hours in a mixture of one part of chloroform and two parts of ether.

2. Wind the gut so prepared, in single layers on suitable spools.

3 Boil the gut for from 10 to 30 minutes in a hot saturated solution of ammonium sulphate in water. The solution is made

by adding chemically pure ammonium sulphate to boiling water until no more of the salt will dissolve.

A 2 per cent. solution of carbolic acid may be substituted for the water, if a quicker sterilisation (3 to 10 minutes), is desired; or 1 in 1,000 chromic acid solution may be substituted if the catgut is to be chromicised.

4. Next thoroughly wash the spools by agitation for from one to two minutes in warm sterile water, or in carbolic or perchloride solution of any ordinary strength.

5. Preserve in strong alcohol.

Elsberg experimented with gut infected with staphylococcus pyogenes aureus from a case of acute tonsillitis; with the same organism from a case of phlegmon of the arm and with the spores of bacillus anthracis. In each instance, the catgut was sterile after boiling in the ammonium sulphate solution for three minutes.

A Case of Intra-Cranial Hydatid Cyst. By F. D. Bird, M.S. (*Intercolonial Medical Journal*, June, 1900).

Bird gives details of a case of intra-cranial hydatid cyst successfully treated by operation. The patient was a boy, aged 18, and his friends insisted that his symptoms dated from the time when he fell from a waggon and remained unconscious for some hours afterwards. The patient's head measured 24½ inches in circumference, the increase in size being general, but most noticeable on the left side. There was a very distinct irregular depression on the left side of the head, corresponding very nearly with the position of the cortical bone centre. At times the depression was replaced by a very distinct bulging. The patient was able to walk, though in a semi-drunken manner. Vomiting taking place without relation to meals, was a prominent symptom, and the only one that had been present (in a much less degree) before the accident. Headache was not marked, and a misty vision and increasing mental dulness had come on only since the fall. There had been slight epileptiform seizures, but no aphasia. The pupils were equal and there was no strabismus present. The reflexes were exaggerated in both legs, and ankle clonus was well marked.

The patient's hebetude and other symptoms suddenly began to increase rapidly, and so on August 23rd, 1899, Bird operated. A flap was turned down on the left side of the scalp, the perforation in the skull exposed, and the cyst removed. The surface of the brain could not be reached by the finger, and the brain made no attempt to rise towards the vault of the skull. The cavity was packed with iodoform gauze, and the wound closed. On coming round from the anæsthetic the patient was seized with severe convulsions, general at first, but afterwards left sided, the right side being completely paralysed. On the sixth day the scar was incised and the gauze withdrawn, the brain having risen towards the vault of the skull. The patient completely recovered.

Bird has collected records of 128 cases of intra-cranial hydatid cyst, of which 78 were intra-cerebral; 36 extra cerebral; 11, both intra- and extra-cerebral; and 3 of doubtful locality. He makes the following remarks as to the symptoms of intra-cranial hydatids:—Local or general enlargement of the head is not common. Thomas says that it occurs in 5 per cent. of all cases, but Bird thinks this is too low an estimate. Local or general enlargement of the head in a patient with even slight cerebral symptoms must be looked upon as decidedly suspicious of the presence of intra-cranial hydatid. The fact that separation of sutures is an unusual symptom differentiates chronic hydrocephalus. Bulging of the cranium gives no indication as to whether the cyst is in the membranes, in the brain-substance, or in the ventricles. On the contrary, thinning of the bones to perforation is a very distinctive sign of the presence of a hydatid cyst within the skull, but outside the brain The variations between bulging and depression in this case Bird attributes to variations in the size of the cyst, and he thinks that this alteration in size may also account for the well known variations in symptoms, which are common in cases of hydatids within the skull. The amount of interference with function is not as a rule proportionate to the extent of brain-tissue, on which the cyst encroaches.

Hydatid Cyst of the Left Frontal Region of the Brain—Operation—Recovery. By George Rennie and W. H. Crego.—(*Australasian Medical Gazette*, July 20th, 1900).

The patient was a boy, aged 13 years. When he was 7 years old, he had a fall on his head from a height of 20 feet. He had symptoms of concussion for 14 hours, but completely recovered in three months time. Afterwards, he continued in good health till January, 1899, when the following symptoms began to appear:—Headache and vomiting; gradual loss of memory; paresis of left arm and leg, followed by more complete paralysis of right arm and leg; and double optic neuritis. This last symptom was more marked in the left eye than in the right. The memory failed and the patient gradually sank into a state of stupor. There was a general fulness in the left frontal region of the head, but no localised bulging. On percussing over this region, there was marked alteration in the note, a peculiar resonance being easily obtained, which was in marked contrast to the dull wooden note over the rest of the skull.

Operation.—On Feb. 13th, 1900, Crego trephined at a point 3½ inches above and 1 in. in front of the left external auditory meatus. The bone was very thin and the dura at once bulged into the trephine opening, but no pulsation could be detected. An exploring needle was passed through the membranes and 3½ ozs. of hydatid fluid drawn off. Pulsation became visible as soon as an ounce of fluid had been drawn off, and at the end of the aspiration the dura was distinctly depressed. The disc of bone was put back and the wound closed. The patient's immediate improvement was very marked, but on Feb. 20th he was again comatose. On this day the wound was re-opened and the dura found to be again bulging. The dura was incised, an exploring needle passed through the bulging cortex, and a drachm or two of slightly turbid fluid drawn off. An incision was made through the cortex, which was about ½ in. thick, and the finger passed in. The cavity was found to extend forwards and downwards and seemed to be about the size of a small teacup. The cyst wall was removed intact and the cavity drained.

The improvement after the second operation was not nearly so striking as that after the first, but went on steadily increasing, so that at the end of 16 days the patient was able to get out of bed and walk two or three steps without assistance.

The plan of operating in two stages was adopted, because it was considered that it would be attended by less shock than the operation in one stage.

REVIEWS.

A TEXT BOOK OF DISEASES OF THE NOSE AND THROAT.*

THIS is a work of some 600 pages which treats in a most thorough manner of these subjects. The arrangement of the work differs, as the author states, from other text books, his aim being to classify the diseases according to "the pathological alterations caused by them;" this arrangement is of advantage and tends to simplify the study of these diseases. As a work for students and practitioners, the instruments that will be required for illumination and examination are illustrated, and certainly a few that will not be required; for instance, a case containing twelve adjustable blades for tongue depressor: we look upon one tongue depressor as a luxury, but when or how twelve are to be brought into play we cannot imagine, nor do we consider the imposing seven bottle inhaler with compressed and hot air attachments "indispensable articles" for a consulting room—hardly so in this country, whatever may be the requirements of American practitioners.

Chapter iii. is given to the general consideration and pathological alterations of mucous membranes from a clinical and microscopical standpoint, including Nasal Bacteria: the author, who is evidently no mean pathologist, seems quite at home in handling these subjects, which he has made interesting, and forms a fitting introduction to the more practical part of the work.

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* A Text Book of Diseases of the Nose and Throat. By D Braden Kyle. M.D. London: Rebman Limited.

In the following chapter, dealing with the *Diseases of the Anterior Nasal Cavities*, some special reference is made to Acute Rhinitis in the young: stress is laid upon the differential diagnosis between Specific Rhinitis and this disease, and distinct and clear methods of treatment are given; as this condition is one so frequently neglected, the student will do well to take note of the author's views; again, the differential diagnosis between Croupous Rhinitis and Nasal Diphtheria is worthy of attention. In dealing with the treatment of the various forms of Chronic Rhinitis, Hyperplastic Rhinitis, &c., the author expresses himself thus: "Personally I am opposed to indiscriminate removal of the turbinated portion of that body, and in all cases its removal should not be attempted save as a last resort;" with this sound advice we heartily agree, for the spokeshave and kindred instruments frequently do irreparable mischief, and the wretchedness of the patient following the clean sweep is a matter which deserves more than passing notice.

Here is an excellent classification of the various forms of Ulceration occurring in the mucous membrane of the nose. The ulcers are divided into *non-infected* and *infected.* Under the former heading are (*a*) *Simple Ulcers*, Catarrhal, Herpetic, Eczematous, Foreign bodies, Neuroparalytic, Scorbutic, Diabetic, Varicose; (*b*) *Compound*, Malignant.

The Infected Ulcers.—Tubercular (Lupoid), Syphilitic, Leprous, Glanders, Diphtheritic. In Measles, Rheumatism, Scarlet Fever, Small Pox, Typhoid Fever, Typhus Fever.

Chapter xi., treating of *Neoplasms of the Respiratory Tract*, opens with a most exhaustive classification under the heading of Non-Malignant, Malignant, Mixed Tumours, and Cysts. This arrangement of dealing with the whole of the Neoplasms together in one chapter, and not separately according to their situation as in most text books, is, we think, a happy one, the chapter is amply illustrated with microscopical sections, which helps materially to a sound pathological knowledge of these diseases. We may draw attention to the coloured section of Angioma of the Septum as a specimen of how well the coloured, as, indeed, all other illustrations, have been executed.

Chapter xvii. treats of Diseases of the Tonsils, and the author divides them into Pharyngeal, Faucial, Lingual, and Laryngeal. We do not think this classification a desirable one, and although, pathologically, it may be correct, clinically, it is somewhat confusing.

Under the term *Adenoid Vegetations*, are included "Enlargements not only of the pharyngeal tonsil, but also of the closed follicles situated in the mucous membrane of the posterior surface of the vault and postero-lateral walls of the naso-pharynx. Pathologically, we have to deal with four different varieties of enlargement of the pharyngeal tonsil, viz.: soft variety, œdematous or cyanotic, and two kinds of the hard variety." We disagree entirely with the author that the soft variety does not demand the same surgical interference which will be necessary in the hard variety; we look upon the soft variety as as far reaching in its consequences as the hard, and his advice, a most unsound one—that all that is necessary is to insert the index finger in the naso-pharynx, and lacerate the gland structure by scraping with the finger nail; we have no hesitation in saying that the attempt of removal by the finger nail, is a worthless procedure, and is one that should be universally decried; in more than one instance, disastrous results, due to septicism carried by the nail, have been known. Our opinion of the finger nail is this: it is dirty, it does not and cannot remove the whole of the redundant tissue, and the surgeon who indulges in a nail long enough and strong enough to be of any service should hide it from public gaze.

The author is a believer in thorough cleansing of the naso-pharynx after the operation, and gives elaborate instructions and various solutions for carrying this out. Our experience has been that this is in no way required, and not only adds to the discomfort of the patient, but interferes with the rest that the parts demand, and in the case of young children it is practically impossible to carry out. If the surgeon will see that his instruments are aseptic, keep from using his finger nail, and prevent the patient from taking cold, no after treatment is required. Our rule is never to attempt any after treatment, and we are quite satisfied with the results.

The advice that the faucial tonsil should be removed before the adenoids, whilst operating under an anæsthetic, is contrary to our opinion; we believe that the earliest advantage should be taken of the anæsthetic to free the naso-pharynx, where the obstruction to breathing is mainly seated, and for which the anæsthetic is chiefly required; the removal of the faucial tonsils takes so little time that they can be removed while the patient is barely under, and we further believe that the risks of operating under chloroform are by this means reduced to a minimum.

The chapters on *Laryngeal diseases* are most complete. The subject of *Neurosis of the Larynx* is worthy of reference. *Operation of the Larynx* forms a separate chapter, written by Dr. Keen: this is concise and up to date. We can heartily recommend this work. The author has spared no pains in writing a complete treatise, which is both scientific and practical.

THE GOULSTONIAN LECTURES ON THE TYPHOID BACILLUS AND TYPHOID FEVER.*

We are glad to see that Dr. Horton-Smith has published his Goulstonian Lectures in book form. They deal with a subject of the greatest scientific and practical interest, and are so exhaustive in their review of the work done in connection with it that there seems but little left to add. Doubtless some of the questions raised still remain undecided, and others are matters of controversy. But to read these lectures is to feel that the reactions of the typhoid bacillus and its products and their usefulness in practical medicine have become one of the certainties of medical work.

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* The Goulstonian Lectures on the Typhoid Bacillus and Typhoid Fever. By P. Horton-Smith, M.A., M.D. Cantab., F.R.C.P. Lond., Assistant Physician to the Brompton Hospital for Consumption and to the Metropolitan Hospital, etc. London: J. and A. Churchill. 1900.

The first lecture deals with the identification of the typhoid bacillus, and its life history and distribution in the human body. The review of the various tests for the bacillus brings forcibly to mind the difficulty of distinguishing it with certainty from the more highly differentiated forms of the bacillus coli group of micro-organisms. By a long series of investigations, however, and by a process of gradual exclusion, practical certainty may eventually be arrived at. Thus, great length, great motility and especially a curious serpentine movement of the longer forms, all suggest that the bacillus under examination is the typhoid bacillus, but none of these points distinguish it from Gärtner's bacillus, Günther's bacillus and Nocard's bacillus psittacosis, all of which have exactly the same characteristics. Again, the typhoid flagella are long and wavy, and from eight to twelve in number on each bacillus, whilst the majority of the members of the bacillus coli group have shorter flagella not exceeding one to three. But in these respects the bacillus enteritidis and probably Nocard's bacillus have the typhoid characteristics. Most of the cultivation tests advance the matter but little further, though the fact that no bubbles are produced by growth in dextrose-agar and dextrose-gelatine serves to eliminate some of the fallacies of the previous tests. The failure of the typhoid bacillus to coagulate milk is regarded by Dr. Horton-Smith as a point of considerable diagnostic value, providing that no decision is come to in a shorter time than one month; but the Gärtner group of bacilli is not excluded by the small amount of acid produced in the process of growth in this medium. This latter point is therefore of but little value in removing the defects of other tests. The same reason renders negative the fact that the typhoid bacillus, when grown in broth, never produces indol.

Useful auxiliary tests are obtained by the use of Capaldi and Proskauer's Media, the composition of which, however, Dr. Horton-Smith does not give, though references are found in a foot note. In the first of these media the typhoid bacillus does not grow, whilst the bacillus coli grows readily with the production of an acid reaction: in the second both grow, but the bacillus of typhoid fever alone manufactures acid. By using the media, many of the most important fallacies may be eliminated. The final and most important is the serum test, which with certain precautions may be taken as final; but these precautions are numerous and severe, and are considered at length by the writer. In not a few cases he is of opinion that nothing short of Pfeiffer's test, involving injection into animals, will render the identification a matter of absolute certainty.

In describing the distribution of the typhoid bacillus in the human body, Dr. Horton-Smith calls attention to its frequent presence in the urine, and states his belief that this is the most important medium for the spread of infection. This subject is elaborated towards the close of the second lecture. The enormous number of bacilli not infrequently found in the urine is believed to start from the accidental escape of one or two germs from the blood into a medium so eminently suitable for their development. The growth is sometimes accompanied by a definite cystitis. The second lecture also contains a consideration of the pathology of relapse, and the view is taken that this occurrence is probably due to a renewal of virulence imparted to the bacilli by the absorption of toxines from the intestine. The matter, however, has hardly yet escaped from the stage of speculation.

The third lecture is devoted to the consideration of the Widal test. Dr. Horton-Smith concludes that for all practical purposes a 1 in 20 dilution with a time-limit of one hour gives very reliable results. If absolute certainty, however, is desired, a much higher dilution, such as 1 in 100, with the same time-limit must be employed. It must, nevertheless, be understood that a negative result with such high dilutions by no means proves that the case is not one of typhoid fever.

Very many points upon which we have not touched also receive consideration in these lectures. Indeed, their prominent characteristic is the extremely wide ground which they cover, and the completeness with which they study the whole subject from every possible stand-point.

THE CAUSE AND PREVENTION OF DECAY IN TEETH. *

THIS book, which we have received from the author for review, we learn from the preface, has been previously published as a series of papers on "The Etiology of Dental Caries" in the Journal of the British Dental Association, and it is with the object of more widely distributing his views that it has been re-issued in this form.

We thought that the words "Decay in Teeth" of the title, was unfortunate, for under such a heading we were not at all prepared to find such careful work or such elaborate theories as are contained in the hundred pages before us. A title is a great deal and the "Dental Caries" of the papers would, we think, have commanded greater respect at first sight.

Briefly, the theory that the author advances is: "The cause of the prevalence of dental caries is that the natural food stuffs are to a large extent ridded of their accompanying fibrous parts, and prepared and consumed in a manner which renders them liable to lodge and undergo acid fermentation in the mouth; while from this same cause and the induced conditions, the micro-organisms of the mouth lodge and multiply, and augment the rapidity and intensity of the acid fermentation." He believes that "Its simplicity and easy verification will commend it, if not

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* The Cause and Prevention of Decay in Teeth. By J. Sim Wallace, M.D., B.Sc., L.D.S., Eng. Published by J. and A. Churchill.

wholly, at least in part . . . and that . . . it is in strict accord with current biological principles and accumulated facts."

The work is the result of seven years investigation of a question which has never been satisfactorily answered and Dr. Wallace is to be congratulated upon the result of his labours. In support of his theory, he refers largely to the works of Dr. Miller of Berlin, and to the dietetic conditions of the many races of mankind who are peculiarly free from dental caries,—*e.g.*—the Esquimaux, Maoris, Icelanders and American Indians, as investigated by Mr. Mummery, and to Professor Weissman on the influence of heredity.

The chapters of "Dental caries and its causation in General," "Civilisation," and "Heredity," are deserving of very careful attention, and should be read by all who are concerned in general family practice, as the whole root of the matter lies in the diet of infants and children, although we are afraid that like so many other excellent theories it will be extremely difficult to get carried out. To the use of the finely prepared "nutritious foods," so largely in use at the present day, are ascribed all the dental ills that flesh is heir to—caries, over-crowding or irregularity of the teeth, recession of gums, &c., and he considers that with the more exact knowledge and use of proper and natural foodstuffs caries may one day become as infrequent as many diseases at one time so prevalent and now so rare.

We think, however, that the writer, having worked in this particular groove for so long a time, is disposed to give it credit for possessing a more baneful influence than necessary, and to dismiss too lightly some of the other previously considered "predisposing causes." To show that his theory is ridden too hard we quote the following passage. "For this purpose (the freeing of the buccal cavity from micro-organisms and other injurious matters) the tooth-pick, floss silk, the tooth brush, tooth-powders, tooth-soaps, and antiseptic mouth washes are advocated to be persisted in with irksome regularity and at inconvenient times. If the aim were achieved the very means for the natural method of preservation of the teeth would be destroyed. Fortunately the methods employed are so ludicrous, inefficient, and seldom performed, that the total amount of good or harm resulting is relatively small."

Still the book should find a place upon the shelves of practitioners having the welfare of the rising generation in their keeping.

A MANUAL OF SURGICAL TREATMENT.*

THE third volume of Professor Watson Cheyne's and Mr. Burghard's Manual of Surgical Treatment deals with the various surgical affections of the bones, including fractures, and with the amputations. On the whole a very masterly account of these matters has been written, and the volume fully carries out the promise given by its two predecessors. A few points are of course open to criticism, and we should be inclined to say that, in dealing with the fractures especially, the authors have described somewhat too exclusively those methods which they are themselves in the habit of adopting, and have passed over others which ought to find mention in a Manual of Surgical Treatment. Some of the methods thus described are not of the newest, whilst in other instances they are of such recent introduction as to be still matters of controversy. For example, we notice that the excellent results obtained by well applied pressure in the treatment of fractures are completely ignored, whilst on the other hand the practice—in our opinion a somewhat questionable one—of cutting down upon and wiring simple fractures is much too freely advocated. Such points, however, are matters of opinion only, and it is only the omissions which are to be regretted. The chapters on the diseases of bones are as excellent as we expected them to be from the reputation of the authors, and we need say no more. The descriptions of the amputations are also very clear and are sufficiently full for all practical purposes.

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* A Manual of Surgical Treatment. By W. Watson Cheyne, M.B., F.R.C.S., F.R.S., Professor of Surgery in King's College, and F. F. Burghard, M.D. and M.S. (Lond.), F.R.C.S., Teacher of Practical Surgery in King's College. Part III. London : Longmans, Green & Co. 1900.

ILLUSTRATED LECTURES ON NURSING AND HYGIENE.*

As far as it goes, this book is in our opinion one of the very best of the nursing text-books. It has not, however, been written for, and Dr. Roberts' Lectures were not delivered to a body of Hospital nurses, and not a few matters a knowledge of which is needed by such a body are therefore omitted. Nevertheless, we venture to think that the book is far more worthy of study than the majority of Nursing Lectures. These as a rule contain details of anatomy and physiology altogether beyond what is needed in the performance of ordinary nursing duties, whilst many deal with questions of medical and surgical treatment which can never come within the province of a nurse. But in the book before us only matters of pure nursing are discussed, and an amount of practical and useful information is collected in its pages which should prove invaluable to those who are undergoing their period of training.

Dr. Roberts' Lectures were delivered in connection with the St. John Ambulance Association, and had for their object the training of ladies for such elementary nursing as may be required of any one whose work lies amongst the poorer part of the population. The writer points out they are equally adapted for the study of men who join the Association, such as those whose assistance has been of so much value in the present war. After a very sensible preliminary chapter containing much sound advice as to the qualifications needed for a nurse, and the rules which she should observe for the maintenance of her own health, successive chapters deal with the management and arrangement of the sick room, food and drink, and the management of fevers and the precautions which must be observed in dealing with infectious disorders. Excellent as are these, perhaps the three following chapters on the observation of the sick and the meaning of important symptoms, and on the details of nursing, are still better, and it would be hard to find any important matter in any of these connections which has been omitted. We heartily commend the whole book to the notice of those whose duty it is to deliver lectures on the art of nursing.

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* Illustrated Lectures on Nursing and Hygiene. By R. Lawton Roberts, M.D. (Lond.), D.P.H. (Camb.) Third Edition. London: H. K. Lewis. 1900.

ESSENTIALS OF DIAGNOSIS.*

To judge by the number of text-books written in the form of question and answer, and by the fact that they generally pass through more than one edition, there appears to be no small demand for this class of literature. The advantage of the method of oral teaching by means of questions is of course not to be disputed; but its main value lies in the mental effort which the student is obliged to exert. In the case of text-books we do not think that any corresponding advantage is gained, and we are sure that such books are generally used by the less intelligent type of student and are apt to be studied by him in the least intelligent fashion. The present book, however, is free from the worst of these objections, for the answers are too long to be learnt by heart. Indeed, the questions here really serve only for the introduction of the subject of the succeeding paragraph, and play but the part of a somewhat extended heading.

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* Essentials of Diagnosis. Arranged in the Form of Questions and Answers. By Solomon Solis-Cohen, M.D., Professor of Clinical Medicine and Therapeutics in the Philadelphia Polyclinic, and Augustus A. Eshner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic. Second Edition, Revised and Enlarged. London: Henry Kimpton, 1900.

The title of the book is a little misleading, for much more space is given to the description of symptoms than to the matter of differential diagnosis. It is true that no diagnosis is possible until the symptoms and manifestations of the various disorders are fully grasped, and in that sense the book may be said to contain some of the "essentials" of diagnosis. We think, however, that more attention might have been paid to the means of distinguishing one disease from another. Apart from these criticisms, the book states clearly and accurately the more elementary points of symptomatology. It does not aim at anything more, and it must not therefore be judged according to any very high standard.

THE STUDENT'S MEDICAL DICTIONARY.*

Although in name merely a new edition, we gather that the scope of the Student's Dictionary has been radically altered. As it now stands it may be said to represent the same author's Illustrated Medical Dictionary reduced to dimensions suitable for the use of medical students. This book merits more than the passing notice which we have thought sufficient for the numerous "Pocket Medical Dictionaries" recently published. It is a most careful and admirable compilation, giving where necessary far more than the mere definition of words, and so complete that we have not succeeded in discovering any omission. Many very useful tables are given. Most of these are as usual of an anatomical nature, but there are others which are still more valuable. We may note for example the tables of the different sorts of batteries, of the reflexes, of the chief chest physical signs, and of the ptomaines and poisons, whilst there is also an admirable and thoroughly exhaustive list of the bacteria.

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* The Student's Medical Dictionary. By George M. Gould, A.M., M.D. Eleventh Edition, enlarged. London: H. K. Lewis. 1900.

One of the best parts of the book is the table of "eponymic clinical terms, symptoms, tests, &c.," to be found at the end. In this table are collected together all the symptoms, signs and tests to which proper names have been attached, the recollection of the meaning of which is such a difficult matter. For this table alone the book is well worth possessing. Occasionally one or other of the definitions strikes us as somewhat unnecessarily obscure: for instance, Tooth's type of muscular atrophy is described merely as "the neurotic type of progressive muscular atrophy; progressive neural muscular atrophy, commencing in the muscles of the feet and the peroneal group." This, we submit, is no definition at all, and leaves the inquirer very much where he was before. But such obscurities are very few in number, and the example we have given is an extreme one. We heartily congratulate Dr. Gould on the excellence of his book, and as strongly recommend it to the notice of the profession.

RHEUMATISM, RHEUMATOID ARTHRITIS, AND SUBCUTANEOUS NODULES.*

THE object of Dr. Hawthorne's essay is to show that the importance of the presence of subcutaneous nodules in establishing the diagnosis of true rheumatism has been somewhat over-estimated, and, indeed, that in admitting an exclusive connection between the two, serious errors in diagnosis are not unlikely to be made. The writer has gone fully into the literature of the matter, and calls attention to many recorded cases in which subcutaneous nodules have been present in undoubted cases of rheumatoid arthritis without suspicion of true rheumatism. Moreover, a list of nine other cases is given in which typical nodules occurred entirely independently of either of these conditions. Dr. Hawthorne further adds notes of five cases of rheumatoid arthritis with subcutaneous nodules observed by himself. In one of these a nodule was excised, and on examination was found to possess exactly the same structure as that described by Drs. Cheadle, Cavafy, and Middleton as characteristic of the "rheumatic nodule." The point is by no means an unimportant one, and Dr. Hawthorne's demonstration is both able and interesting.

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* Rheumatism, Rheumatoid Arthritis, and Subcutaneous Nodules. By C. O. Hawthorne, M.D., M.R.C.P., Assistant Physician to the Royal Hospital for Children and Women. London: J. and A. Churchill. 1900.

MEDICAL ELECTRICITY.*

DR. LEWIS JONES' third edition of the book originally written by him conjointly with Dr. W. E. Steavenson brings the subject of medical electricity thoroughly up to date. It is now some three or four years since the appearance of the second edition, and not a few additions have had to be made to the subject matter. We have not been able to minutely compare the two editions, but we learn from the preface that the main alterations consist in the more elaborate treatment of the methods of utilisation of current from the main for medical and surgical purposes, in the re-writing and greater elaboration of the chapters on statical electricity and on certain forms of electrical baths, and in the addition of a short chapter on the medical and surgical use of the Röntgen rays.

The clinical chapters have not, we think, been much altered. This is probably due to the great care which was originally spent in making them as complete as possible. We strongly recommend those practitioners who have not made a special study of the uses and modes of application of electricity to read this section of the book. There is much to be learnt from it.

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* Medical Electricity. A Practical Handbook for Students and Practitioners. By H. Lewis Jones, M.A., M.D., F.R.C.P., Medical Officer in Charge of the Electrical Department in St. Bartholomew's Hospital. London; H. K. Lewis, 1900.

THE PHYSIOLOGICAL FEEDING OF INFANTS.*

Dr. Pritchard's pamphlet on the Feeding of Infants contains much valuable and practical information. He has taken the trouble to work out tables giving the quantities of the various food stuffs required to provide the amounts of fat, proteid, sugar, and lime water physiologically needed by infants at different ages. These tables will prove of the greatest service, and should be kept at hand for reference by those who have difficulty in constructing suitable dietaries on their own account. Other formulæ are given—namely for the preparation of peptonised milk, fresh meat juice, condensed milk, white of egg mixture, &c., and some of the signs and results of bad feeding are briefly considered.

The same writer also sends us a " Physiological Nursery Chart," which gives briefly the same directions for feeding, together with details as to satisfactory increase of weight, and a series of short " Nursery aphorisms."

SOUTHALL'S ORGANIC MATERIA MEDICA.†

The publication by Mr. Barclay of a new edition of Southall's excellent manual of Organic Materia Medica has been rendered necessary by the appearance of the new British Pharmacopœia, with which it has now been brought into thorough accordance, The only important alterations introduced, with these exceptions, consist in the amplification of the preliminary notes on Essential Oils and the addition of an Appendix on the constitution of Alkaloids. In other respects the book remains essentially as it was.

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*The Physiological Feeding of Infants. By Eric Pritchard, M.A., M.D. (Oxon.) London: The Scientific Press, Limited, 1900.

Physiological Nursery Chart. By Eric Pritchard, M A., M.D. London: The Scientific Press, Limited, 1900.

† Southall's Materia Medica. Sixth and Enlarged Edition. By John Barclay, B.Sc. Lond., F.C.S., Sometime Lecturer on Materia Medica and Pharmacy in Mason College, Birmingham. London: J. and A. Churchill. 1900.

VARIA.

THE SANITARY INSTITUTE.—We are requested to call attention to the fact that the Council of the Sanitary Institute have arranged to hold the following Examinations in Birmingham during 1901:—

Practical Sanitary Science and Inspectors of Nuisances, March 22nd and 23rd.

Inspectors of Meat and other Foods, March 29th and 30th.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

MESSRS. BURROUGHS & WELLCOME send us samples of predigested milk and meat "Enules." We have previously commented on the convenient form of these preparations for rectal introduction when reporting on the opium "Enules" sent to us by the same firm. The present preparations contain 10 grains of concentrated peptone made from milk, and 8½ grains made from beef, respectively, in each Enule.

MESSRS. BURROUGHS AND WELLCOME send us samples of an enlarged Blaud's Pill Tabloid, containing 8 grains of the mixture of ferrous sulphate and sodium carbonate. The Tabloids hitherto manufactured by this firm have contained 4 grains only of the preparation, a dose the size of which is constantly exceeded in practice; and the advantage of diminishing the number of Tabloids taken is obvious. We need hardly add that no combination takes place between the two ingredients of these Tabloids except in the presence of water, and that the result is practically the administration of a freshly prepared ferrous carbonate, perhaps the most easily assimilable salt of the metal

We have further received from MESSRS. OPPENHEIM, SON AND CO. LIMITED, a sample of a new antiseptic to which the title

"Traumatol" has been given, and which consists of an iodide of cresylic acid. It is claimed that this preparation is the most powerful bactericide at present in use, and the Grand Prix has been awarded to it at the Paris Exhibition. Another preparation of the same material has also been issued which can be diluted with water and employed as a lotion or injection.

We have also to acknowledge the receipt from MESSRS. G. STREET AND CO. LIMITED, of a bottle of Oxo, a new Fluid Beef preparation manufactured by the Liebig Company. It is a palatable fluid, free from all objectionable taste, but its most important claim to notice is perhaps its low price, namely, 10d. per two ounce bottle. The possibility of obtaining a cheap form of beef extract will prove a great boon to the poorer class of patients, and the preparation will be sure to meet with due appreciation.

New Books, etc., Received.

From J. and A. Churchill—

Ulceration of the Bladder: Simple, Tuberculous, and Malignant. By E. Hurry Fenwick, F.R.C.S.

Southall's Organic Materia Medica. Sixth and Enlarged Edition. By John Barclay, B.Sc. (Lond.), F.C.S.

From Henry Kimpton—

Essentials of Diagnosis. By Solomon Solis-Cohen, M.D., and Augustus A. Eshner, M.D. Second Edition. Revised and Enlarged.

From H. K. Lewis—

The Student's Medical Dictionary. By George M. Gould. A.M., M.D. Eleventh Edition.

Illustrated Lectures on Nursing and Hygiene. By R. Lawton Roberts, M.D. (Lond.), D.P.H. (Camb). Third Edition.

From the Scientific Press, Limited—

The Physiological Feeding of Infants. By Eric Pritchard, M.A., M.D. (Oxon.).

Physiological Nursery Chart. By Eric Pritchard. M.A., M.D.

From Smith, Elder and Co.—

Orthopædic Surgery. By Charles Bell Keetley, F.R.C.S.

We have also to acknowledge the following—

The Diagnosis of Chlorosis and Chloro-Anæmia and other Papers. By Alfred Stengel, M.D.

Zur Statistik und Technik der Bottini'schen Operation bei Prostata-Hypertrophie. Von Dr. Albert Freudenberg.

How to Learn a Foreign Language. By William Pulman.

Kentucky School of Medicine and Hospital in the City of Louisville. Register of Students, 1900. Circular of Information, 1901.

Abortion. By A. D. Wilkinson, M.D.

Metropolitan Board of Water Supply and Sewerage. Medical Adviser's Report on the Health of the Metropolis, year 1899.

The Remote Lesions in Urethro-Stenosis. By Reginald Harrison, F.R.C.S. (Eng.).

Report of the Committee of the American Surgical Association on the Medico-Legal Relations of the X-Rays.

Calendar of the School of Medicine of the Royal Colleges, Edinburgh, Session 1900-1901.

Total Excision of the Scapula alone and with the Arm; Partial Excision of the Scapula for Tumour. By J. J. Buchanan, M.D.

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THE
BIRMINGHAM MEDICAL REVIEW.
NOVEMBER, 1900

ORIGINAL COMMUNICATIONS.

FORENSIC MEDICINE AND PROFESSIONAL CONDUCT.*

BY SIR HENRY LITTLEJOHN, M.D., LL.D.,
PROFESSOR OF FORENSIC MEDICINE IN THE UNIVERSITY
OF EDINBURGH.

I CONSIDER it a compliment that of late you have paid the University of Edinburgh in inviting its professors to give this Annual Address. My colleague, the Professor of Surgery, Mr. Chiene, who was my predecessor in this honourable position, has, as you know, been doing his duty in assisting to mitigate the injuries received in the Cape War by our troops, and is, I am happy to say, just returned, after having done yoeman service at the front. Indeed, gentlemen, that is one of the glories of Medicine, that while with us "Peace has its victories as well as war," what with the benefits of chloroform, antiseptic surgery and of the Röntgen rays, the risks of warfare have been wonderfully lessened by the discoveries of our profession. And here one must pause and pay a passing tribute to the devotion of the Dublin professor, Sir W. Stokes, who has so recently lost his life in this noble cause, showing as much true courage as if he had died leading some storming party, and I am sure that our profession has true cause to be proud of the imperial and womanly feeling of our Queen in sending so promptly to the widow such a touching note of sympathy.

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* An Address delivered at the Birmingham General Hospital, on October 8th, 1900, on the occasion of the Distribution of Prizes awarded by the Clinical Board.

Such is the profession, upon the practice of which you are about to enter. Fear not, gentlemen, that I am about to inflict upon you a learned discourse upon any of the seething questions of the hour. In the course of your studies you have listened often enough to these. Indeed, I never see an assembly of medical students without being reminded of the poor woman in the Gospel " who had suffered many things from many physicians." Substitute for " physician " the word "lecturer" and you have a pretty accurate statement of the daily life of the medical student. Luckily the trend in our education at the present day is in the direction of the substitution of practical instruction for mere verbal expositions in the lecture room. You, at any rate, as clinical students, have been brought face to face at the bedside with the facts of nature in disease, and have been taught to interrogate them for yourselves. Who would believe that this method of instruction has only been introduced in our own day? I remember well that in the historical clinical wards of our old Edinburgh Royal Infirmary, with such teachers as Christison and Alison, no student was ever allowed to put a question to a patient—much less to examine him or use the stethoscope. No doubt a formal visit was paid daily to the wards, and the professor made passing remarks which were almost inaudible to the large proportion of the students. Everything was reserved for the set lectures delivered in the University Buildings at some distance from the wards, and which were dignified by the erroneous title of " clinical lectures." All this is now changed, and we owe it to our Continental brethren that the system was initiated of the true clinical or bed-side instruction in which each student was called upon in turn to conduct the examination of the patient, to give his diagnosis and to prescribe for him on the spot. In Edinburgh we owe the happy change to my old master, Professor Hughes Bennett, who introduced the Continental system and at once rendered the class of Clinical Medicine the most popular course in our Medical School. Before that, it had been shunned by the students generally—the only parties gaining true substantial benefit from our Hospital being the resident and clinical clerks. Of course the apprenticeship system in vogue in England and Scotland before this did good service in accustoming the student to the exigencies of ordinary practice and in giving him the advantage of, in many instances, admirable medical superintendence. Nowadays in Scotland our numerous dispensaries, with their out-door practice, enable the student to acquire confidence in the use of drugs and in dealing with patients.

You must have observed, gentlemen, that every department of medical study (with one exception) has its corresponding practical course, in which the students can bring to the test the prelections of the lecture room. I need only refer to those of Chemistry, Anatomy, Physiology, Pathology, Materia Medica, Midwifery, Surgery, and Medicine. And the student has in addition placed at his disposal special departments in our hospital for the treatment of Diseases of the Eye, the Throat, the Skin and the Teeth. The student is, as I have said, thus thoroughly equipped for practice, the only exception being that in the important subject of Medical Jurisprudence he enjoys no opportunity of studying it in its practical bearings. He is never called on to examine an injured party and report on his condition as in a Court of Law; he never conducts a chemical analysis, however simple; he never has an opportunity of seeing his professor perform a medico-legal dissection; and, lastly, he has no opportunity of examining the bodies of those who have died suddenly in suspicious circumstances. This is the more to be wondered at when we consider that the very first case in which a young man, entering on practice, may be called on to assist the Criminal Authorities may be one involving a knowledge of Forensic Medicine and acquaintance with its practical details. Such a case may, as I have known, prove the turning point in his career. Indeed, we must confess, that in ordinary practice, too often our mistakes are buried with our patients, and that undetected disease escapes public observation. It is the reverse in medico-legal practice; any mistakes we make in a defective *post-mortem* examination, or a too hasty examination of an injured party—such faults committed, so to speak, in secret, come to be proclaimed on the house-top, and we are brought to face them in a court of justice. No one has witnessed, much less undergone such an ordeal, without being painfully reminded of the importance of this generally neglected branch of medical study. The problem how best to interest the medical student in such a subject is, in my opinion, an easy one, and I am convinced from a long experience, that the only profitable way to do so is to bring him face to face with the facts of nature. Can he ever forget the appearances in a case of, say, asphyxia, which have been demonstrated to him by his teacher? How different this from the book knowledge derived from assiduous perusal of text-books! Indeed, I have observed that the student who has watched the dissection, step by step, say, of a case of death by drowning, occupies a vantage ground in a University or College examination to which his examiner, in all probability, cannot lay claim. I should say there are few examiners in my department who have ever personally conducted the *post-mortem* dissection of a case of drowning; and in the one I have pictured, the student may, as I have known, find his best knowledge misunderstood and the marks allotted, smaller than he was entitled to. Now the very official who can supply this instruction is the surgeon attached to our police or criminal departments in town or country. Should the body of an infant be found exposed, should the circumstances of a death be of a suspicious character, should a criminal be arrested and there are doubts as to his condition, whether insane or alcoholic, all these important and most interesting questions are submitted for his judgment and he thus acquires a great experience, which is otherwise, too often lost to the literature of Forensic Medicine. Every professor and every lecturer on the subject should have, I hold, such an official connection with the criminal authorities as would enable them to give a practical character to their prelections and thus fit the students to give satisfactory evidence in the witness box. There can be little doubt that our Scottish system of medico-legal procedure, just like our national game of Golf, will ultimately be adopted south of the Tweed. The small end of the wedge has been introduced by the establishment of the office of Director of Criminal Prosecutions. It was monstrous under the old system that if a murder were committed, the nearest relatives were, at considerable expense, bound over to prosecute. The crime is a public outrage on society, and it is the duty of the state to prosecute and to defray all expenses connected with its investigation. In Scotland this is the rule. From our close connection with France in years gone by, we copied in main part their system of criminal procedure, and we have, scattered all over the country, lawyers who are public prosecutors, and who, along with the police, attend to crime in all its relations. These officials naturally fix upon some medical practitioner in their district who shows an aptitude for such inquiries, and a pretty extensive employment of this kind adds to his income. The public benefits, and while the criminal is brought successfully to justice, it is pleasant to reflect that the medical examiner's experience thus gained, has often relieved an innocent person from unjust suspicions.

But we go further, cases of sudden death uncertified are refused to be registered, and the Registrars report all such to the police authorities, and it can be safely affirmed that, in our northern Metropolis, no body is interred without its having been examined and certified by a legally qualified medical man. As it is the Surgeon of Police who is called on to discharge this duty, it can easily be seen what a fruitful source of experience is thus provided, in many cases, of course, still further enlarged by *post-mortem* examinations. This plan enables us to abolish the term "Uncertified Deaths" in our Registrar-General's Reports. There can be no doubt that the passing of the Registration of Deaths Act was a fraud on the medical profession who were called on compulsorily to state to a public officer facts concerning their patients of the greatest delicacy and in many cases affecting the honour and happiness of families. Now if this duty is to be enforced, its value should be recognised as in the Notification and other Acts. If this were conceded, then an Act should be passed for the whole Kingdom, declaring it illegal to inter any body unless the probable cause of death were certified by a legally qualified practitioner. Under the present system, as I have often pointed out, a serious crime may be committed, and the body of its victim interred, without a medical certificate being obtained. The murderer has thus abundant time at his disposal to disappear from the scene and escape the arms of the Law, while putrefaction may destroy all evidence of the crime.

The question of Certificates naturally leads us to contrast still further the practice of the two sister countries. In Scotland, notes are taken during a medico-legal dissection, and these notes are at once carefully revised and written out in the shape of a report signed by two medical officers and handed to the Public Prosecutor. The report begins or ends with the phrase "on soul and conscience," words which I defend on the principle that, where medical men are engaged in duties, the effect of which may place a fellow citizen's life in the greatest jeopardy, they cannot be too deeply touched with a sense of their responsibility. Every sentence in such a document must be duly scanned, and the opinion, with which the report concludes, must be their deliberate summation of their previous statements. Such a report is final and, when once presented to the Public Prosecutor, it cannot be altered or its statements modified except by a further declaration to that effect in open court. Such a confession, I need hardly say, has a most disastrous effect on the evidence of the witness, and may, as I have known, lead to severe comments from the bench.

In this southern part of the kingdom, on the other hand, notes are taken during the dissection and these form the basis of the medical evidence given on the trial. No doubt these notes must be sworn to as having been taken at the *post-mortem* examination, but it may be asked who is to prevent additions or alterations to supplement them (as the true nature of the case becomes apparent) from the statements, it may be, in the public press, or from the evidence that is forthcoming in the various remands of the suspected party? The Scottish system insures, as far as possible, a ***thorough*** examination ***at the outset;*** and the prisoner, when furnished through his attorney, with a copy of the Medical Report, can at once set about preparing for his defence. Indeed in Scotland, our treatment of prisoners is becoming more humane, and we are granting greater latitude in allowing the accused party to be represented at the *post-mortem* examination by one or more medical men on his behalf. To this I have never offered any opposition; all Crown Medical Inspectors are enjoined to make as thorough an examination as possible, and to omit nothing of importance that would assist in the detection of crime; but they are at the same time warned to state everything that may tell in the prisoner's favour.

Every day a party taken up on suspicion of some serious crime is treated as I have said with more and more consideration. When taken before a magistrate, he must be represented by his legal agent, and no question is allowed to be put to any prisoner while in custody of police or in prison, by medical man or other officer, likely to criminate him, without, if possible, such assistance or the strictest warning; and the question we have to ask ourselves as to such interrogatories is "would a law agent, if present, allow the prisoner to answer it?" In 99 cases out of 100 he would not. He would not allow his unfortunate client to criminate himself or give the slightest assistance to the Crown authorities in their endeavour to secure a conviction. A lawyer would never permit a prisoner, for example, to make an imprint of his foot to aid in his identification. It has long been recognised that to submit a female to an examination against her will constitutes an assault. A nice question, however, arises as to a simple matter in connection with infanticide. "Would a lawyer permit a client to expose her breast to a medical man acting for the prosecution, in order to aid him in making a diagnosis of pregnancy?" I should say he would not, in the interest of his client. If so, are we of the medical profession justified in the absence of a prisoner's legal adviser, in asking a poor woman to give us this aid without due warning that any information thus obtained will be used against her?

And now I have to ask myself the question, is it necessary, with your present advantages, for the young graduate to continue his studies furth of the country, to use a Scottish phrase. The expense of education has, no doubt, of late years greatly increased; but the cost of a visit to the Continental and other schools need not, in my opinion, be incurred if a student conscientiously avails himself of the opportunities for study of special subjects now amply afforded in our midst. While this is so, it must be conceded that to those who can afford it, and who are determined to profit by it, a visit to the medical centres of Berlin, Vienna, and Paris, not to speak of London, Edinburgh, and Dublin, is of great importance A year of travel and study could not be better spent. Attendant on this *Wanderjahr* there are many advantages. In the first place, we are forced to learn the language of our neighbours *outre mer*, and this, of itself affords the opportunity of studying the fertile literature of the Continent. We see foreign sights, inspect hospitals, and enjoy the seeing and listening to those men of distinction in their special departments whose names we are already familiar with as household words. Then there can be no doubt that the well-known apothegm of Bacon still holds true that ".Travelling is a part of education." And we must remember that the unusual facilities now presented to almost all classes of the community of Continental travel have introduced the public to a wider experience of men and manners; and there can be no doubt that a graduate who has spent say a year, profitably, on the Continent, acquires a polish and a *savoir faire* which greatly increases his chances of gaining the confidence of the public. Indeed, I can truly say that I attribute any success in life I have obtained, first to the teaching of my Alma Mater, and second, to the advantage I enjoyed of travel and study. I emphasise the word "study," for you must not make your *Wanderjahr* all ease and pleasure. The conscientious student never works harder than when on the Continent, taking notes of lectures, watching the practice of celebrated physicians and surgeons, visiting museums, little conscious, possibly, at the time that in after years all these notes and the experience gained will bear ample fruit. Once engaged in the whirl of practice one has little time to make and record dissections. Hence it is that I do my best to counsel students to attend with punctuality our pathological theatres, and never to allow a wet Saturday at least to pass without, catalogue in hand, examining the specimens in our various museums. Again, intelligent travel and study will conduce to tolerance in your opinions as to theories and discoveries. The motto for the medical man should always be "Prove all things—hold fast that which is good." It is, indeed, humiliating to look back and find that in every case of a great discovery the most strenuous opposition came from our own profession. From the days of Harvey to those of Lister the tale has been the same. It is a painful subject to dwell upon. Now travel will be a powerful adjuvant in the cultivation of an intelligent and liberal spirit. It will also tend to deliver you from pedantry. It is a trite remark that a man who can talk only on one subject, and that, it may be, the business of his life, is a bore and cannot be regarded as a pleasant companion. One penalty, indeed, you owe to your scientific training, and that is, in all companies you will be liable to be appealed to on a large number of questions, and there can be no doubt that the education you have received here should give you a certain amount of facility in dealing with such interrogatories. In truth, a medical man should have other resources than simply to fall back on purely professional topics. The professional bow should not always be bent. The busy practitioner must have his hours of relaxation; and I trust that every one of you will endeavour to cultivate some subject, some accomplishment, it may be, which will tend to alleviate the tedium and worry consequent on fagging and often annoying professional work. It may be music, instrumental or vocal; it may be art, in some one of its various branches; it may be literature, which is at the disposal of all of us. Of course, I need not mention the higher considerations of religion. But in all the discouragements of city and country practice, and I have experienced both, remember that by doggedly tackling the duty, however irksome, that lies nearest you, you will gain a feeling of satisfaction that will be its own reward, and enable you like Milton, to pursue your way in "cheerful godliness." I thank Wordsworth for these words. Cheerfulness, gentlemen, is an accomplishment, and only requires assiduous training to become a settled habit. The benefit attending the entry of a cheerful medical man into the sick chamber has often been commented upon, and when we call to mind how a cheerful disposition reacts on our own and increases our domestic pleasures, the importance of its acquisition need not be insisted upon.

In the present political crisis I have often been asked the question: "How far shall we of the medical profession intervene, as citizens, in the frays of political life." I would counsel you not to interfere actively in such contests. A medical man like every intelligent citizen, must have political beliefs, and should never have the slightest hesitation in avowing these when specially called upon to do so. But standing, as we do, confidential friends of citizens of all shades of opinion, it would necessarily provoke injurious comment were we to descend into the political arena and assume the role of active partisans. While this advice I hold to be a wholesome one, and should be followed, the medical man, protected as he is by the ballot, should, in all circumstances, record his vote. He of all men should show no apathy when important principles are at stake. The remarks I have made apply still more strongly to municipal contests. He is a citizen, and he is entitled to record his opinion of the doings of the municipality. But as to engaging personally in municipal contests, and as to his becoming, in the midst of his professional avocations, a member of our local councils, I doubt greatly, whether the time at his disposal could not be more profitably spent than in the heated discussions of our Council Chambers. There is, however, one department in which, I think, he is imperatively called upon to give his fellow-citizens the benefit of his professional training, and that is with regard to those questions becoming every day of vital importance. I refer to those affecting the public health. Even yet, the education of the public mind on these is far from satisfactory. In our large centres of population, leavened thoroughly with members of our profession, such questions, no doubt, receive more enlightened discussion; but in our small burgh and county towns, petty local interests interfere with the salutary working of our Health Acts, and it frequently happens that the ordinary principles of sanitation are set at defiance. Too often the representative of our profession in these bodies—the medical officer of health—very inadequately remunerated, is treated in a manner derogatory to the profession at large. Salaries of ten pounds and five pounds are freely offered, and, I regret to say, accepted. I have often remonstrated with my brethren for receiving such doles, reflecting, as they do, disgrace on our common profession. The answer generally is: "I am living in hope of my salary being raised. If I throw my situation up, there will be plenty of applicants for the vacant post."

Now, while there can be no doubt that the profession is overstocked, so far as this country is concerned, I have always maintained that it is the duty of a medical practitioner to refuse to allow himself to be placed in the position of having to accept inadequate remuneration for his public professional work. Now this is exactly the class of cases in which the members of our profession should, to assist a brother, insist on a proper honorarium being paid him for the responsible duties of a health officer. I could mention honourable instances of medical men descending into the arena of municipal struggles for the very purpose of seeing that the Public Health Acts are being properly worked, and that officials are suitably paid for their important duties. I need not do more than allude to such questions as hospital accommodation for infectious diseases, the housing of the poor, milk and water supply, sewage disposal, in all of which the general public require to be guided. With regard to these, I hold it to be the duty of every medical man to give no uncertain sound, and should occasion demand it, even to engage in municipal contests. No loss of any serious kind can accrue from his taking a decided part in the discussion of such important topics. He, at least, in their advocacy, cannot be accused of any selfish motive, for the successful promotion of all such inquiries tends to improve public health and to lessen the mortality from preventable diseases. It is now many years ago since the great Sir J. Y. Simpson struck, with no uncertain sound, the keynote in this great struggle in his memorable pamphlet " How to stamp out Smallpox." It is humiliating to reflect that his suggestions, which certainly would have had the effect he aimed at, have never been carried out in their entirety. In all such circumstances the voice of our profession should have its due weight, and it behoves every member of it not to hang back, lest forsooth, his professional prospects might suffer, but to speak boldly out when such important topics are being discussed in a community.

If ever called upon, gentlemen, in future to engage in such a warfare, bear yourselves as men who have enjoyed the full benefits of a liberal education, and with the sense of duty ever uppermost in your thoughts, whether you are combatting disease in its varied phases, whether speaking a kind word to some shipwrecked brother, whom illness has thrown in your path, whether standing up for your profession and claiming for it its true position as the great health authority, you may rest assured that you are upholding the best traditions of your Profession and of this School of Medicine.

Gentlemen, my heart goes with you. It is a great pleasure for one like myself, who has borne the heat and burden of the day, to come into contact with men like yourselves with " Hope like a fiery column before you—the dark pillar not yet turned" —and looking forward to the struggle of life. The future is uncertain, and with the plethora of members of our profession, one is apt to be dismayed at the prospect.

Be not, however, disheartened, exercise a sturdy determination to do your duty, whether as serving in some junior hospital appointment, as assistant in general practice, or as locum tenens and you are sure to quit yourselves like men, and like Milton, to "abate not one jot of courage, but steer right onwards."

For more than 40 years I have watched the fortunes of medical students, and have thus had a wide experience. I have known of *no* instance of anyone not giving way to day dreams, and not indulging in any vice, who has ever failed to achieve a modest competence and to secure the trust and affections of his patients. MAY THAT BE YOUR LOT IN LIFE.

ON THE ETIOLOGY OF NON-TUBERCULAR MENINGITIS.*

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JUDGING by the number of papers which have been published and the discussions which have taken place considerable interest has during the past year or two been aroused in the subject of Meningitis. No doubt this is in a great measure due to the increased prevalence of the disease, but also to the new questions which have been raised concerning its etiology by the bacteriological discoveries of recent years.

Although the tables of the Registrar-General for England show a remarkable uniformity in the incidence of meningitis as a cause of death during the last twenty years, the figures per 10,000 of the population having only varied during that time between 2·2 and 3·2, other countries have been less fortunate. In the early part of this year meningitis was epidemic in Dublin, and there

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[*] An address delivered to the Birmingham and Midland Counties Branch, on October 11th, 1900.

have been several outbreaks in France, Germany, and the United States. Some of these have undoubtedly been examples of epidemic cerebro-spinal meningitis such as we had in Birmingham in 1876, but a part of the unusual prevalence has probably been correctly attributed to the effect of the influenza poison, which appears to predispose to meningitis in the same way that it does to pneumonia and through the agency of the same microbe, the pneumococcus, in each case.

I am inclined to believe that meningitis is increasing in Birmingham, and that this increase is due to the non-tubercular form. The registers of the General Hospital show that for the last twenty years the average annual number of cases of meningitis of all kinds has been 6·1 with 3·65 *post-mortem* examinations, but up to September 21st of the present year, there have been 11 cases of meningitis admitted into the medical wards with 10 deaths and 9 autopsies. One case was at that date still in the hospital. Of the nine examined *post-mortem* only two showed tubercle; of the remaining seven, one followed a sub-phrenic abscess and was septic; one was associated with pneumonia and the pneumococcus was found in the brain; two showed cerebro-spinal lepto-meningitis, and three presented *post-mortem* appearances of posterior basal meningitis.

I have looked up all my records of meningitis at the General Hospital since July, 1885, when my notes commence. There are altogether twenty-one cases with seventeen deaths and *post-mortem* examinations in fifteen only. Of these fifteen, nine were undoubtedly tubercular meningitis, one was a hæmorrhagic purulent case with a history of injury to the head, and another was evidently dependent upon suppuration in the right middle ear. Two were examples of purulent vertical meningitis, and only two, the last of the series, were cases of simple posterior basal meningitis. I have scrutinised the clinical notes of the other six cases to see whether either presents reasonable grounds for thinking that it ought to be included in this last group.

The first was a boy, aged 4, a rickety child who had had a blow on the head. He left the hospital apparently cured and the condition, though registered as meningitis, was probably the effect of concussion.

The second was a woman, aged 26, supposed to be syphilitic. She was discharged at her own request after going through a course of mercurial inunction.

The third was a boy, aged 4, discharged cured after nineteen days' stay in the hospital. It was a doubtful case.

The fourth was a girl, aged 3, who was discharged cured after six weeks' treatment. The case was dependent upon otitis media and improvement followed incision of the tympanic membranes.

The fifth was a boy, aged 9 months, who died, but there was no *post-mortem* examination. The case followed inflammation of the lungs and was probably one of pneumococcus meningitis.

The sixth was a girl, aged 8. The meningitis may be reasonably attributed to otitis media, as there was a foul discharge from the left ear. It was fatal, but there is no *post-mortem* record.

These facts lead me to the conclusion that not only is there an increase in the number of cases of meningitis, but that it is probably due to a form of the disease which is either new, or is one from which we have been for many years practically free.

The following are brief notes of the two cases which have been under my care, and I show you photographs of the children taken during life and the brains which have been preserved in formaline:—

Case 1.—Elizabeth W., aged seven months, was admitted into the General Hospital, on February 4th, 1900, suffering from retraction of the head and headache, which had existed for a week. Her father was said to be phthisical; her mother was fairly healthy, but there were cases of consumption in her family. Of the four other children three were healthy, and one was under treatment for bronchitis. Up to the present time the patient had been in good health, and no increase had been noted in the size of the head. A fortnight ago the patient had a fit, which lasted for two hours. It was characterised by complete unconsciousness, with twitching of the eyes and turning of them upwards; there was no vomiting.

On admission the child was rather thin and showed marked retraction of the head, which was abnormally large and the anterior fontanelle was widely opened; the pupils were equal, but very contracted; there was no squint. No obvious paralysis was seen in the limbs. P. 150, T. 101·6, R. 24; lungs normal; tongue furred; two teeth were erupted in the lower jaw; the liver and spleen were normal. The child was restless, crying out now and then even when asleep. On the day of admission she vomited once. On February 12th an ophthalmoscopic examination was made; the right disc was clear, but the left could not be properly seen. On February 15th it is noted that the child had become more restless, weaker, and more emaciated, that there was greater tension over the fontanelles, and that the retraction of the head was increased and the spine curved forwards; the knee jerks were increased, but there was no paralysis. The temperature continued to be irregular, reaching sometimes as high as 101° or more. On February 18th it is noted that she was getting much thinner and was semi-comatose; that the retraction of the head was more marked, and that she vomited frequently after food. On February 19th nystagmus was observed, and there were occasional sudden jerking movements of the body. On February 21st it is noted that the opisthotonos was more marked; that the fontanelles bulged greatly; that vomiting had occurred during the night, and that at intervals of 5 to 15 seconds there were convulsive movements as if the patient were trying to force her head further back, while the concavity of the spine was increased. The legs were flexed upon the body and drawn up. On March 3rd a second ophthalmoscopic examination was made, but no optic neuritis was seen; there was slight internal strabismus. On March 5th a lumbar puncture was made. The fluid was distinctly turbid; the films showed many diplococci, some of which were inside the leucocytes. The cultures showed a pure growth of diplococcus with the culture and microscopical characters of Still's diplococcus of simple posterior basal meningitis. On March 5th a drawing was made of the position of the child, showing the retraction of the head, antero-posterior curvature of the spine and flexion of the legs. The wasting had become very marked, and there was a difficulty about getting her to take food; the respirations were rapid, T. subnormal; the skin was dry and shrivelled; the lips were blistered; the internal strabismus was greater. She did not appear to be in any pain, and was more or less comatose. She died on March 7th.

At the *post-mortem* examination it was noted that the body was that of a small, extremely emaciated child, with great retraction of the head and flexion of the knees and opisthotonos. With the exception of slight broncho-pneumonia, which was not marked, the thoracic organs were normal. In the peritoneum there were a few enlarged glands, but no tuberculosis. The liver was slightly fatty; kidneys normal. The other abdominal and pelvic organs were normal. In the brain there was simple meningitis, limited to the posterior part of the base, which was covered with thick yellow flakes of lymph. There was occlusion of the foramen of Majendie; and thickening of the walls of the posterior cistern; the medulla was firmly adherent to the cerebellum; the convolutions of the surface of the brain were flattened and the lateral ventricles distended, their ependyma being acutely congested. There was no tubercle anywhere. There was acute suppurative meningitis (lepto meningitis) of the cord most marked low down.

Miscroscopical examination of the cultures taken from the cord and brain showed staphylococcus pyogenes albus, staphylococcus pyogenes aureus, staphylococcus pyogenes citreus; and a diplococcus (not Still's). The films showed diplococci like Still's, but there was no growth of this organism in the cultivations.

Case II —Frank H., aged 2, was admitted into the General Hospital, on May 19th, 1900, with irritability and restlessness which had existed for four days. His father and mother were alive and healthy as was one sister; there was no tubercular history in the family; the patient had had no previous illness, but four days before admission, about six o'clock in the morning, he woke up restless and cried a great deal and resented being touched. He remained irritable all that day and vomited three times, he was feverish to the touch; he had a bad night, but the next morning he went to sleep about nine and slept till four in the afternoon. He woke up exceedingly cross and his mother was up with him the whole of that night. The next day his condition remained much the same and was followed by another bad night; as he did not get any better he was brought to the hospital. His head was retracted, but his mother stated that she had not noticed it until that morning; there had been no vomiting after the first day; he had taken very little food and had lost a good deal of flesh since the commencement of his illness. His mother said that as a rule he had preferred to sleep on the left side, but that since being ill he had always lain on the right; his bowels were rather constipated.

On admission the patient looked a fairly well nourished child. He was lying on his right side with his head well retracted and resented all interference; his limbs were slightly flexed; his cheeks were flushed; his tongue moist and slightly furred. There was slight convergent strabismus of the right eye which had developed during the last few hours. The child had many signs of rickets, such as beading of the ends of the ribs, enlargement of the ends of the long bones, broad head, and open fontanelles; there were no enlarged glands nor any discharge from the ears; the pupils were of moderate size, regular, equal, and reacted to light; discs normal. The deep reflexes were unobtainable, but all the superficial reflexes were lively. The chest moved well; there was nothing abnormal to be heard over the lungs; the pulse was 130; the heart sounds were normal. The abdomen was soft, not tender; the spleen could not be felt, but the liver came just below the costal margin. On May 24th it is noted that the head was more retracted, the irritability greater, but that there was no vomiting and the child took food well. There was some dulness in front of the left side of the chest and in the left axilla there were a few crepitations. On May 25th it is noted that the child was not so apathetic, but that opisthotonos was more marked. On May 22nd a lumbar puncture was made. The fluid showed very slight opacity, microscopically there was some excess of leucocytes, mainly lymphocytes, but no organisms were found. Cultures showed no growth after twenty-four hours and the report was that the case was most probably tubercular. On May 26th it is noted that the aspect of the child had altogether changed; the temperature had become normal; the mental condition was quite bright; there still appeared to be a small amount of internal strabismus. On May 28th the child was again much worse, the temperature going up the day before to 103·4°, P. 120. The head was again retracted; the strabismus had increased. On the 29th there was an improvement. On May 30th another ophthalmoscopic examination was made and the discs were still described as normal. On June 2nd the leucocytes in the blood were counted and found to number 17,760 per cmm. On June 8th another lumbar puncture was made. The fluid was much more turbid than before and contained numerous polymorphonuclear leucocytes and a considerable number of diplococci flattened at the opposed surfaces and resembling Still's diplococcus of simple posterior basal meningitis, cultivations of which were made. On June 9th it is noted that the right pupil was greater than the left; that the retraction had become much more marked; that vomiting had occurred in the night for the first time since admission; and that the strabismus was increased. The child's thighs were flexed upon the body and his legs upon the thighs, the limbs being distinctly rigid, the knee-jerks were increased; the plantar reflexes were brisk. He was taking his food badly. On June 10th it is noted that he had vomited several times. On the 12th he had another fit in the evening, which lasted half-an-hour, which consisted of tonic spasms with marked opisthotonos; the arms and legs were extended. On June 17th the notes say that there had been no more fits, but that he vomited after all his food. The left external rectus was paralysed and the right pupil was much larger than the left. On the 20th the patient was lying in a semi-comatose condition with the head retracted and the arms and legs flexed and rigid. He died on June 23rd, but there had been no more fits. Just before death the temperature rose to 103·2°.

At the *post-mortem* examination, with the exception of a small amount of recent broncho-pneumonia in both lungs, there were no changes of any importance except in the brain and cord. In the former there was well marked posterior basal meningitis with thickening of the pia-arachnoid, especially in the region of the posterior cistern and at the sides of the medulla. The lateral ventricles were much distended, and the brain very soft. The spinal cord showed diffuse purulent meningitis, which was best marked in the region of the cauda. There was gelatinous infiltration of the pia-arachnoid throughout with considerable congestion of the membranes posteriorly, together with some hæmorrhagic infiltration in the cranial region. Cultivations made from the cerebro-spinal fluid showed diplococci of Still, staphylococcus aureus, staphylococcus citreus, staphylococcus albus, and a (putrefactive) bacillus which was not identified.

Cases of meningitis may be classified under the following headings: 1, tubercular meningitis, which constitutes at ordinary times about 90 per cent. of the idiopathic cases of meningitis met with in children, and which is, of course, due to the bacillus tuberculosis; 2, meningitis following pneumonia, caused by the pneumococcus of Fraenkel, and to which influenza seems to be a predisposing cause; 3, meningitis following enteric fever where, at least in certain instances, Eberth's bacillus or the bacillus enteridis is present; 4, septic meningitis, caused by the staphylococcus aureus or albus, the streptococcus pyogenes, the bacillus pyocyaneus, etc., this may be secondary to diseases of the middle ear, or, the microbes may penetrate by the nose, or, the disease may depend upon a focus of suppuration in some distant part of the body; 5, epidemic cerebro-spinal meningitis due to the meningococcus of Weichselbaum, the diplococcus intracellularis; 6, posterior basal meningitis as described by Barlow and Lees, due to a diplococcus presenting very striking resemblances to the diplococcus of Weichselbaum.

With respect to the etiology of epidemic cerebro-spinal meningitis, the infection is generally believed to enter the system through the nose, the characteristic diplococcus being found in the nasal mucus. But the importance of this is diminished by the fact that according to Netter, Heubner has found the diplococcus intracellularis in the nasal mucus of healthy children.

Dr. Bruce Low states that cerebro-spinal meningitis occurs in domestic animals and is probably spread from them to man. He believes that the so-called epidemic influenza of horses is really cerebro-spinal meningitis and that the dog and the pig also suffer from the same disease and are possible vehicles for its transmission to human beings.

It is not altogether settled that Weichselbaum's diplococcus is the sole cause of epidemic cerebro-spinal meningitis. In the discussion which took place at the Berlin Medical Society, on the 17th of May last year, the constancy of the relation was denied by Stadelmann and Kroenig, while Heubner said that this organism was never found in tubercular or purulent meningitis. Fraenkel declared that it was present in a case following injury. In the epidemic which occurred in Dublin at the beginning of this year, the diplococcus was found in all cases examined by Dr. O'Sullivan and Prof. McWeeney.

Posterior basal meningitis has been described in a very admirable article by Lees and Barlow, in the seventh volume of Allbutt's System of Medicine, and figures there as a disease independent of cerebro-spinal meningitis, although the authors admit that the "more acute of their cases resemble that disease in many respects." The resemblance of the diplococcus of posterior basal meningitis, called the diplococcus of Still, is so great that Dr. Still himself, who wrote the bacteriological part of the above article, after mentioning certain small points of distinction, says: "It seems most probable that these differences are the result of natural variations and represent rather modifications of characteristics than a distinction in kind." Moreover, in the *Lancet's* report of the discussion upon cerebro-spinal meningitis which took place at the Epidemiological Society last year, Dr. Still is reported to have said that he regarded posterior basal meningitis as identical with the cerebro-spinal form. The differences which Dr. Still notes between his organism and the diplococcus intra-cellularis of Weichselbaum, consist in its capacity to grow well in broth, the greater duration of its vitality, and the variability of its virulence. These are not great differences, no greater, indeed, than the several varieties which have been recognised of the meningo-coccus. We hear of the Weichselbaum type and the Jäger-Heubner type, and there is another variety which has been described by Chauffard. In the recent discussion upon meningitis which took place in the section for Children's Diseases at the International Medical Congress M. Netter definitely affirmed that the disease, which has been called Posterior Basal Meningitis in England, is in reality a sporadic form of cerebro-spinal meningitis.

It is, of course, possible that Lees and Barlow may have discovered a new form of meningitis, but when the symptoms and bacteriology so closely resemble those of epidemic cerebro-spinal meningitis it is incumbent upon them to discuss the possibility of the identity of the two diseases, and to give reasons, if they have any, for regarding them as distinct; yet throughout the article the independence of posterior basal meningitis is taken for granted and nowhere justified by arguments. If it were described as a new disease this would be less surprising, but according to the authors, cases, which they regard as identical, occurred as far back as 1877, shortly before which time, it is well to remember, cerebro-spinal meningitis had been epidemic in this country.

Some here may remember that in the winter of 1875-76 cerebro-spinal meningitis was epidemic in Birmingham, in Oxford, in London, and probably elsewhere in this country. I commenced my duties as Pathologist at the General Hospital on May 1st, 1876, and in the course of the next few months I examined *post-mortem* several cases, but none of them were acute. They seemed to be the tail end of the epidemic. I saw nothing of the disease clinically, but I do not think I can give you a better picture of it than by transcribing the following words of Sir Walter, or, as he then was, Dr. Foster:—

"The illness had generally begun suddenly, with shivering, pain in the head and spine, giddiness, vomiting, great restlessness and excitement, with stiffness of the neck and spinal column. In the more severe cases, the retraction of the neck was an early symptom, and there was well-marked delirium. Shooting pains in the limbs and hyperæsthesia of the general surface were commonly observed. In most cases the fever was rapidly developed, rising to between 102° and 103° F., within a few hours of the commencement of the illness, in two cases observed from the onset. The fever was very irregular, scarcely any two temperature charts being alike, and in some a variation of two or three degrees occurred in the course of a few hours. There was also frequently a want of the usual relations between temperature, pulse, and respiration rates. In addition to the characteristic symptoms of sudden onset, early high temperature, intense headache, sickness, and stiffness of the neck and spine, there were the extreme restlessness and agitation of the patients. This last symptom, together with the general cutaneous hyperæsthesia, had led, in more than one instance, to a diagnosis of hysteria. This was a grave mistake and the possibility of the error deserved to be borne in mind. The eruption of herpes on the lips and face had been common; red rashes and petechiæ had also been observed. Disorders of sight were not unusual, and in one case amounted to absolute blindness lasting for some days. Deafness also occurred in some cases, and in one, dysphagia so complete as to necessitate the use of nutritive enemata for a time."

This brief summary would stand very well for a description of Posterior Basal Meningitis, as it differs only in inconstant particulars such as the occurrence of high temperature, of herpetic, erythematous, and petechial eruptions, which, however, are common to both and only vary in their relative frequency. The two cases under my care, of which I have read notes, were clinically Posterior Basal Meningitis, but the distribution of the inflammation was cerebro-spinal. Now, inflammation of the cord is noted in several of the cases related by Lees and Barlow, but in many no examination of the cord was made, and there is no record of its condition! Of course it is possible that they are not the same as those described by Lees and Barlow, but the clinical picture is exact. The photographs I have shown you might almost be copies of the plates in Allbutt's System of Medicine, and their drawing of the brain is exactly like one of my specimens when fresh. My own opinion is that there is no reasonable ground for doubting these cases to be identical with those described by Lees and Barlow, and the only question is whether Posterior Basal Meningitis is an independent disease or a sporadic form of Cerebro-spinal Meningitis. I confess that I lean to the latter view, and I regard these cases as the possible forerunners of an epidemic which may be of considerable importance to the public health. In the Annual Reports on the health of the city during the last two years, deaths from meningitis have not been included under a separate heading, as had been the case previously; I hope the Health Authorities of this city will restore this heading, and that they will watch the cases that occur in our hospitals and infirmaries. In Dublin it has been found desirable to make meningitis a notifiable disease, an example which might well be followed here, should the increase in the number of cases continue.

BIBLIOGRAPHY.

1.—Lees and Barlow. Simple Meningitis in Children Allbutt's System of Medicine. Vol. VII.

2.—Ormerod, J. A. Epidemic Cerebro-Spinal Meningitis. *Ibid.* Vol. I.

3.—Still, G. A. The Micro-organism of Simple Posterior Basic Meningitis in Infants. *Brit. Med. Journal*, 1898. II., p. 1159.

4.—Barr, J. Meningitis. *Ibid.*, 1899. II, p. 1401.

5.—Dana, C. L. Common forms of Meningitis. *Journal of Nervous and Mental Diseases*, December, 1899.

6.—Berdach. *Deutsch. Arch. f. klin. Med.*. February, 1900. Report.

7.—Report and Discussion on Meningitis at the Royal Academy of Medicine. *Lancet*, 1900. I., pp. 1408–1805.

8.—Klimenko. *Russian Archives of Pathology*. Abstract in *Lancet*, 1899. II., p. 369.

9.—Discussion at the Epidemiological Society, 1899. *Ibid.* I, pp 304-5.

10.—Delvaille, C. Autour d'une Épidémie. Bayonne, 1837-1897; Paris. 1899. Abstract in *Lancet*, 1899. II., p. 414.

11.—Wentworth, A. H. Epidemic Cerebro-Spinal Meningitis. *Lancet*, 1898. II, p. 854.

12.—Councilman, Mallory, and Wright. Report on Epidemic Cerebro-spinal Meningitis to the Massachusetts State Board of Health, 1898.

13.—Parsons and Littledale. Epidemic Cerebro-spinal Meningitis in Dublin. *Brit. Med. Journal*, 1900. I, p. 1529.

14.—Class, W. J. Report on Epidemic Meningitis in Chicago.

15.—Starck. Meningitis following Measles. *Jahrb. f. Kinderheilk.* Vol. xlvii.

16.—Netter. Diagnostic de la Méningite Cerebro-spinale (Signe de Kernig, ponction lombaire). *Ibid.*, 1898, p. 281.

17. Reports of Discussions at the Société Médicale des Hôpitaux. *La Semaine Médicale*, 1898-9.

18. Florand. *Ibid.*, 1898, p. 286.

19. Chauffard. *Ibid.*, 1898, p. 501.

20. Rendu. *Ibid.*, 1899, p. 128.

21. Netter. *Ibid.*, 1898, p. 286.

22. Foster, B W. Cerebro-spinal Fever. *Lancet*, 1876. I., p. 850.

23. Bruce Low. Epidemic Cerebro-spinal Meningitis. *Lancet*, 1899. I., p. 304.

DISCUSSION ON DR. SAUNDBY'S PAPER.

HUGH THURSFIELD, M.A., M.D. Oxon, M.R.C.P. Lon., Medical Registrar and Pathologist to the Hospital for Sick Children, Gt. Ormond Street, London.

Posterior Basic Meningitis is a disease which is always more or less prevalent in London. In the year ending in July 1900 I have seen at Gt. Ormond Street seventeen cases, of which twelve were examined *post-mortem*. The question whether this disease and Epidemic Cerebro-Spinal Meningitis are the same seems to me to depend principally on the results of bacteriological examination, for the clinical differences are on the whole—except in one point, that of the age-incidence—extremely slight. As regards the bacteriology of Epidemic Cerebro-Spinal Meningitis Weichselbaum in 1887 described a diplococcus having certain morphological and cultural distinctions from any other known pathogenic organism, which he had found in the meninges of patients who had died of the disease. The results obtained by other investigators in the same field have on the whole confirmed Weichselbaum's work, and his diplococcus intracellularis is now looked upon as almost certainly the cause of the epidemic disease. The sporadic disease Posterior Basic Meningitis was not investigated bacteriologically till Dr. Still took up the work. In 1898 he published a paper giving an account of an organism isolated from these cases of meningitis, an organism which in morphology, and to a certain extent in its behaviour in cultures strongly resembled Weichselbaum's diplococcus intracellularis. The chief differences noted between the two organisms were in the duration of vitality, and in their behaviour in broth media. Weichselbaum found that his organism died very quickly; Still was able to demonstrate that his lived at least 30 and in some cases even forty days. Weichselbaum's diplococcus gave almost no growth in broth; Still's grew very well in that medium. These differences are, as Dr. Still has pointed out, of no vast importance, and are easily explained by variation in media, and the like. In my own work I was at first unable to get the organisms to live more than a few days, while the cultivations that I shew to-day are already in some cases ten days old, and still alive. On the whole it seems probable that Weichselbaum's organism and Still's are identical, and the two diseases also; the sporadic form being more or less always with us, while the epidemics are few and far between. In nine examinations I have been able to demonstrate the diplococcus in eight, and to cultivate it in five; in three in pure growth. One of the best means of obtaining pure growths I believe to be Lumbar Puncture *post-mortem;* the cultivations made from the cerebral exudation being very easily contaminated. Passing from the bacteriological to the clinical aspect of the disease, besides the symptoms enumerated by Dr. Saundby in his paper, there are others which are often of some value. Kernig's sign, the tonic contraction of the flexors of the leg upon the thigh, is nearly always present in these cases. Marked retraction of the upper eyelid is also not infrequently seen; a striking contrast to the photophobia of tubercular meningitis. By the ophthalmoscope, of 17 cases, the fundus shewed some change in eleven; in five of these, the change was a definite optic neuritis, in one, accompanied by retinal hæmorrhages. Rarely the joints are the seat of an inflammation shewn by Dr. Still to be due to the same diplococcus which is present in the meninges.

The diagnosis has to be made in cases where the head is retracted, from cases of diarrhœa, and from congenital syphilis. In both instances there may be some hesitation, but usually, it is easy to distinguish them. The real difficulty is in those cases where head retraction is absent or very slight. Then typhoid fever, general tuberculosis, other forms of meningitis and pneumonia may be simulated by this disease; the diagnosis, as a rule, however, becoming quite certain before death takes place. As regards treatment, no drug, with the possible exception of mercury, seems to have any effect upon the disease, and therefore, it is necessary to consider whether lumbar puncture has any therapeutic value. From the aspect of the cerebro-spinal exudation *post-mortem*, it seems to be quite impossible that this proceeding should have any beneficial effect, the lymph exuded lying under the pia-arachnoid and quite inaccessible from the point of view of drainage. Yet, at the recent International Medical Congress at Paris, in the discussion upon the non-tuberculous forms of meningitis, speaker after speaker professed himself satisfied that lumbar puncture has a very definite value as a therapeutic agent. The strongest advocate of the operation was Dr. Concetti of Rome, who stated that "provided it was employed early in the disease and frequently, in his experience the prolonged cases were not noted, nor the disastrous sequelæ, such as hydrocephalus, amaurosis, deafness, idiocy, etc. Recovery was always complete." With this body of opinion in its favour, lumbar puncture must be given a further trial in this country before it is too hastily condemned on *a priori* reasoning. Pure cultivations of the diplococcus on various media, and a series of lantern slides were shewn in illustration.

R. F. C. LEITH, M.A., B.Sc., M.B., F.R.C.P. Edin., Professor of Pathology in the University of Birmingham.

There can be but one opinion of the value of Dr. Saundby's paper. The subject is one which has long engaged the attention of medical men, and of late, owing largely to the recent advances in bacteriological methods of examination, it has roused up a greatly increased interest. It is by such practical papers as this, dealing with a careful and detailed examination of cases alike from their clinical and bacteriological aspects, that progress in the subject is most likely to be obtained. Dr. Saundby has asked us to discuss the causes of primary Non-Tubercular Meningitis, and more particularly its basal forms and the relation which may exist between the posterior basal form described by Lees and Barlow, and the more severe disease known as epidemic cerebro-spinal meningitis. He gave us the clinical signs of cerebro-spinal meningitis only in so far as they were present in his cases, and did not discuss their relative value either in meningitis in general or in its basal form. On *a priori* grounds, one would hardly think that clinical signs are likely to help us to differentiate between any two forms of basal or of cerebro-spinal meningitis, though the greater severity of cranial nerve implication in any case points to implication of the base. The value of Kernig's sign as an indication of spinal meningitis has lately received prominence, and Dr. Thursfield is to be congratulated on the attention he has paid to it and the other clinical signs which he has mentioned. We hope that he will continue his investigations and that they will prove as valuable in differential diagnosis as he is inclined at present to think. Personally, I incline to the bacteriological side as most likely to give us the more valuable results. It has already done much towards the elucidation of the whole question of meningitis. From our present enquiry the forms of meningitis arising secondarily to ear, eye, face, etc., disease or injury, or any other disease, whether general or local and their causal bacteria, are excluded. Such forms are generally severe and run a rapid course, much purulent exudation being found especially over the vertex after death. In this respect they are similar to most cases of epidemic cerebro-spinal meningitis, where, excluding the fulminating forms, which may cause death from septicæmia in a few hours, before time for meningeal exudation has been allowed, there is well marked fibrinous exudation almost always purulent in the subarachnoid space over the vertex only, or widely spread over vertex, base, and posterior surface of cord. In the less severe and rapid forms often seen at the beginning of an epidemic, there is a tendency towards special incidence or even limitation to the base of the brain and posterior surface of the cord, resembling in this latter respect the much more chronic disease described to-day by Dr. Saundby, and that described by Lees and Barlow, known as posterior basic meningitis, and even in those cases in which the fibrinous exudation does not extend to the cord there is always an increase in the spinal fluid which also contains pus. The spontaneous non-tubercular forms of meningitis are spoken of as primary in so far as no obvious disease is known to precede them, and in uncomplicated cases no lesions of any importance, other than those relating to meningitis are found after death. This does not exclude the action of predisposing causes such as injury, chills, mal-nutrition, bad hygiene, and deteriorating influences generally, which are here, as in the causation of all bacterial disease, factors of the greatest possible importance. Dr. Saundby has mentioned various organisms as the causæ causantes, the most important of which are the pneumococcus, the diplococcus intracellularis of Weichselbaum, and the diplococcus of Still. I ought, perhaps, to exclude the first from his list, as he does not seem to believe in a primary pneumococcal meningitis, *i.e.*, unpreceded by some such disease as influenza, or pneumonia, to prepare the way for it. That it does occur in such cases, and that they should not be called primary, I entirely agree ; but I go further, and say that it also occurs when there is no such definite preparation, no more preparation, in fact, than occurs in the case of the other two organisms, or, indeed, in the case of any organism which we are accustomed to speak of as the primary cause of any disease. If these three organisms are distinct from one another, we have at least three specific forms of meningitis which I may call pneumococcal, Weichselbaum, and Still, respectively. On the other hand, if the organisms are the same, or at most, varieties of one race, then their resulting meningeal inflammations are but mere modifications of one and the same disease. This question will be settled, for I do not think we are yet in a position to settle it, by a careful study of the morphological, biological, and pathogenic characters of the three organisms. So far as these are at present known to us, it is obvious that the Weichselbaum coccus and the Still coccus are much more closely related to one another, than either of them is to the pneumococcus. The latter's shape, its capsule, its staining by Gram's method, some of its cultural characters, and its greater virulence appear to separate it very distinctly from the other two. We must, however, guard against laying too much stress upon these differences. New characters, formerly unthought of, have been recently discovered to belong to the pneumococcus. It was formerly thought to disappear quickly from its exudations, as it could not be demonstrated in them when they were of any duration, but this can now be done by an improved method of staining, which shows that the capsule is a most persistent structure, capable of being made visible in old exudations, even when its contained coccus is a mere degenerated dot, or no longer existent. No organism is more variable than the pneumococcus in its virulence and pathogenic results. It is known to be a common inhabitant of the mouth and nose of man, sometimes in great numbers, varying in different individuals and in the same individuals at different times, and sometimes altogether absent. By a combination of increased virulence on its part, and a diminished resistance on the part of its host, it may become pathogenic, selecting the lung as the commonest site in which it sets up its local inflammatory changes. The lung may escape, and one of the serous membranes be chosen, viz., the meninges, the pleura, or the peritoneum, to mention them in their order of frequency. The virulence of the pneumococcus, when grown in the lung, is very much greater than when grown in a serous membrane, for a large quantity of pneumococcal pus from the latter situation may be injected into a guinea pig without any injurious results, while a very small quantity of the lung exudate made into an emulsion will, when similarly injected, have a fatal effect. This diminution in virulence is often very marked in the pneumococcus obtained from primary meningitic exudate, much more so even than in that obtained from the primary pleural exudate in which it is frequently very pronounced. In the meningitic and pleural exudates occurring in the course of a pneumonia, it is on the other hand usually very virulent. The form of primary meningitis set up by the pneumococcus may in every detail apparently resemble the cerebro-spinal form described to-day by Dr. Saundby, or the posterior basal form described by Lees and Barlow, or the epidemic cerebro-spinal form. This does not necessarily prove them to be the same, for different organisms may at times approach one another in virulence, and their products being closely allied may, acting upon the same anatomical structures, produce local changes practically indistinguishable from one another. We may in such cases be able to detect differences in the general effects upon the system, through absorption of the toxines. The pneumococcus may set up serous or sero-fibrinous, or fibrinous, or sero-purulent, or fibrino-purulent or purulent local inflammations, and in addition to the lesions already mentioned it may cause an otitis media, a cerebral abscess, and even a localised subcutaneous abscess, a striking illustration of the great variety in the pathogenic results which a single organism can produce under modifications not yet fully known to us. The characters of Weichselbaum's coccus and of Still's coccus are still imperfectly known, but the balance of present day evidence points to their being of a different race from the pneumococcus. That cases of pneumococcal meningitis even in considerable numbers should occur either during an outbreak of epidemic cerebro-spinal, or along with the sporadic or chronic form is only what would naturally be expected when we consider that the conditions which render the meninges susceptible to the other two organisms, will have a similar influence in the case of the pneumococcus, which is practically always with us. In this last respect it contrasts with Weichselbaum's coccus, which, notwithstanding statements to the contrary, is but rarely found in the nasal secretion of normal individuals, though it has been detected therein in a considerable number of cases attacked with the disease during an epidemic. When we come to contrast the organisms of Weichselbaum and Still we find that their morphological, biological, and pathogenic characters are so closely similar, that it is difficult to come to any other conclusion than that they are modifications of the same organism It is true that there are differences between them mainly affecting their cultural characters and their virulence, both in their natural and experimental occurrence, but it is doubtful if they are sufficient upon which to base a difference of race. Through the kindness of Dr. McDonald I had an opportunity of examining and cultivating the organisms obtained by lumbar puncture in the cases of cerebro-spinal meningitis occurring in the General Hospital. They were identical with the diplococcus of Still in all the cases with the exception of one under the care of Dr. Stacey Wilson in which the organism present was the pneumococcus, and so far as I have been able to form an opinion, I am inclined to agree that Still's organism is merely a modification of Weichselbaum's. The main difference between them is in degree of virulence, the former being much less virulent than the latter. This view is in keeping with the naturally occurring diseases. In the first place, we must regard Saundby's cerebrospinal meningitis as identical with the posterior basal form of Lees and Barlow, since the same organism was found in them. The other organisms mentioned by Dr. Saundby as found *post-mortem* in his cases were obviously of secondary occurrence or accidental contamination. Then, if Still's organism is merely an attenuated form of Weichselbaum's, it is natural that it will only be able to cause a milder and much less frequently occurring disease than is set up by Weichselbaum's. It can only attack specially susceptible and specially prepared individuals, whereas the latter can act much more widely. This would explain alike the great chronicity and sporadicity of these forms that have been brought before us to-day, and the acuteness and epidemicity of those epidemic forms caused by the diplococcus intracellularis meningitidis of Weichselbaum.

J. A. CODD, M.D. Lond., Hon. Assistant Physician to the Wolverhampton General Hospital.

The experience of Dr. Saundby at the Birmingham General Hospital was paralleled by ours at the Wolverhampton General Hospital. While simple Meningitis is by no means common among our Hospital cases, yet in the early part of July of this year three cases of posterior basic meningitis were admitted, one under the care of Dr. Malet, two under my own care; and Dr. Malet saw a typical case in private, which recovered, about the same time. Suspecting the possibility of the disease presenting itself in epidemic form, I made enquiries at the time as to whether either had come into contact with the other. They came respectively from Wednesfield, Moxley, and Chadsmore near Cannock, and had not left their homes until they were brought to the hospital. Through the kindness of Dr. Malet I was enabled to study his case in the wards, and to reproduce the notes. A brief summary of the notes, which were taken by

Mr. Morland, the House Physician, may not be without interest.

Case 1.—Aged 2½, one month's history, with retraction of head for three weeks. On admission, conscious but does not take much notice, lies quietly, frequently cries, but not hydrocephalic cry. No eye spasm or paresis. Marked retraction of upper eyelid. (Stellwag's sign.) Fundus oculi normal. Constant retraction of head, spine straight and rigid. Legs drawn up. Irregular pyrexia. Treatment: Bromide and Iodide of Potassium āā. gr. i. thrice daily. Two doses of Santonine given without effect. Retraction ceased on eleventh day, and steady improvement afterwards.

Case 2.—Aged 2½ (Dr. Malet's case), seven weeks' history. On admission, comatose, great retraction of head, and rigidity of neck and back. Kernig's sign present, double optic neuritis, no eye spasms or paresis. Irregular pyrexia. Died on fourth day. P.M.: On incising cerebral dura the great intraventricular pressure ruptured the overlying brain substance with copious flow of fluid. Convolutions flattened. Thickened membranes and thick lymph beneath arachnoid at base and down whole length of cord. Hæmorrhagic effusion into and around dura in upper dorsal vertebræ. Mr. Morland found only diplococci in this lymph.

Case 3.—Aged seven, one month's history. Rapid wasting. On admission, tremulous, many bedsores, retraction of head, rigidity of neck and spine. Very irritable, screams when touched, legs and arms flexed and stiff, passive movement painful. Dulness, bronchial breathing, crepitations at right pulmonary base. Treatment: Syr. Acid. Hydriod ♏ xx. sextis hor. Four days later a hard lump formed over right occipital bone, and, on incising it down to the bone, no pus was found, but it was very vascular, and for several days the wound was very callous, showing no granulations. Temperature up to 103·2 on night of admission fell to normal two days after, rose again the day the tumour appeared, with a second rise two days after. Otherwise normal. Chest signs cleared up on twelfth day. There were never any pulmonary symptoms.

No cases have, however, appeared since, and though the incidence of three cases practically simultaneously is remarkable, there is no probability of an epidemic outbreak in the neighbourhood of Wolverhampton.

Walter R. Jordan, M.D., Extra-Acting Physician to the Children's Hospital.

With regard to the first proposition submitted by Dr. Saundby, that the cases of post-basal meningitis are sporadic cases of cerebro-spinal meningitis, I have no reason for opposing the general trend of the discussion so far in favour of that conclusion. The preponderance of points of resemblance is sufficient to convince me of their identity, provided the bacteriologists do not produce positive evidence in favour of separating them. But the bacteriologists seem inclined rather to identify than to differentiate the diseases, though Professor Leith's remarks on pneumococcus meningitis indicate possible complications of the question. With regard to Dr. Saundby's second proposition, that there is at the present time an increase in the number of these sporadic cases, foreshadowing an epidemic outbreak of the disease, I can only say that I have not myself observed any such increase in my practice amongst the out-patients at the Children's Hospital, nor have I heard of any such observation by any of my colleagues. An examination of the Hospital statistics for the past ten years (including the present) shows that, as at Great Ormond Street, we are practically never without these cases, although the number admitted to the Hospital in any single year is always very small. That very small number has not been increased to any extent either this year or the last. My own experiences therefore are against the probability of Dr. Saundby's surmise being verified.

O. J. Kauffmann, M.D., M.R.C.P., Physician to the Queen's Hospital, Birmingham.

After the remarks of Dr. Thursfield and Professor Leith, it is hard to doubt the generic identity of Weichselbaum's diplococcus with that described by Still in the cases of Drs. Lees and Barlow. But whether the two germs be identical or not, there is no plain reason why "posterior-basal meningitis" should not at times assume an epidemic form, just as nearly every infective disease may do. As regards the evidence in Birmingham, of an epidemic increase of this disease, I cannot say that my experience can add to it. I see a good number of children in the out-patient room, and there has not been, to my knowledge, a single case of meningitis this year among my out-patients.

Since Dr. W. R. Jordan, with the large number of children under his observation, has likewise failed to see a marked increase either in the out-patient or in the indoor department of the Children's Hospital, I would suggest, that the increase in those cases observed by Dr. Saundby, may depend upon a localized epidemic in some slum in the neighbourhood of the General Hospital, some nest in which, from close contact, the disease has great facilities of propagation; for we know that out-patients at the hospitals are largely drawn from the immediate neighbourhoods of these several institutions, and it might be well worth while to enquire into the home-addresses of the patients who have come under Dr. Saundby's observation.

One sole typical case, the brain and cord of which I shew, was admitted under my care into the Queen's Hospital in June. The child, aged 5 months, died on the 8th day of the disease, and, in conformity with the rapid course of the illness, and in agreement with Drs. Lees' and Barlow's experience, the meningitis may be seen affecting the convexity of the cerebrum in great degree. No pulmonary or other visceral disease was, however, found in the body.

With regard to the treatment to be employed, I must say, that considering the thick pus-like lymph which enveloped the cord in my case, the prospect of usefulness of repeated lumbar puncture appears to me to be small. I should be more inclined to try vigorous mercurial treatment, as has been done by Drs. Lees and Barlow with some apparent success. Mercury has an undoubted effect upon several bacterial diseases, and this one is, as a rule, of sufficiently prolonged course to allow the drug a fair chance of acting.

T. STACEY WILSON, M.D., M.R.C.P., Physician to the Birmingham General Hospital.

The cases of primary non-tubercular meningitis which I have had under my care at the General Hospital during the last two or three years certainly bear out the statements of Prof. Leith as to the variety of the micro-organisms which seem to cause it, and in addition to Still's diplococcus and the pneumococcus, I should be inclined to add the influenza bacillus and possibly the staphylococcus albus.

Further, I do not think that the experience I have had tends to simplify the question of the causation of posterior basal meningitis, for one at least of my cases where the pneumococcus was present in the cerebro-spinal fluid during life showed some points of resemblance to posterior basal meningitis.

Influenzal Meningitis.—With regard to influenza as a cause of meningitis, I have had at least one case at the hospital where this seemed to be the only cause assignable. The patient was a young man who had severe unilateral convulsions due to a unilateral suppurative meningitis mainly involving the motor area. In this category might also, possibly, come another case in a child who suffered from convulsive attacks and was trephined six or eight weeks after the onset of his illness. On opening the dura, a considerable area of softening of the cortex was found, such as might well have resulted from a meningitis, although no definite signs of meningeal inflammation remained.

Pneumococcus Meningitis.—As to the pneumococcus as a cause of primary meningitis, I have in the last two years had two well-marked cases. In the first, it was purely cerebral in distribution; in the second, it began as a spinal meningitis, and became cerebro-spinal in a few days.

In the first case, the meningitis, which seemed mainly to have been confined to the left side of the vertex rather than the base, subsided, except in so far as several collections of pus in the convolutions and recesses of the brain were concerned. One of these collections caused death by rupturing into the 4th ventricle some six weeks after the commencement of the illness. In these abscesses the pneumococcus was found in what seemed to be a pure culture.

In the second case where the meningitis was cerebro spinal in distribution, the pneumococcus was obtained from the cerebro-spinal fluid by lumbar puncture during life. In this case, the patient, a boy aged 8, died some three months after the onset of his illness and after the cessation of all symptoms of his meningitis, except the progressive emaciation. On *post mortem* examination, there was found a well marked purulent exudation into the membranes of the spinal cord and the base of the brain.

Meningitis in Staphylococcus Pyæmia.—As to the case of staphylococcus pyæmia to which I have referred, the patient was a man, aged 24, who was admitted to hospital with symptoms resembling acute alcoholism, but who in the course of five days developed well marked signs of cerebro-spinal meningitis, together with a considerable amount of pyrexia. Retraction of the head continued for six weeks, and the fever for eleven weeks. Cultivations from the blood taken at the seventh week of his illness showed the presence of staphylococcus albus, and as the case progressed, the cerebro-spinal symptoms subsided, but the pyrexia assumed a type which I have seen in another case where the staphylococcus albus was found in the blood, and which I have not infrequently seen in cases recognisable as suffering from a mild type of septic infection. I regret that in this case lumbar puncture was not performed, and therefore I cannot speak definitely as to the cause of the meningitis. It is of course possible that it was a true case of epidemic meningitis, and that the staphylococcus infection was only secondary.

Posterior Basal Meningitis.—During the last twelve months I have had three cases of non-tubercular primary meningitis amongst my patients at the hospital. One of these is the second case of pneumococcus meningitis already referred to, and the two others are two cases with characteristic symptoms of posterior basal meningitis.

The first case is that of a man, aged 24, who had been ailing more or less for a month with pains in his head, but for the last two weeks prior to his admission had been delirious and almost maniacal at times. The illness began with a rigor and aching in all his limbs. He had to take to his bed immediately. Pain at the back of the head and neck with delirium speedily supervened.

The following note as to his state on admission was made by my house physician, Dr. Cyril Lewis: "His eyes have a wild staring look, he sees things in front of him and tries to get at them, he struggles and fights a good deal, and picks at the bedclothes." He continued in much the same semi-delirious state with retraction of the head and other symptoms of meningitis. He showed rapid and extreme emaciation, and died sixteen days after admission. A few days before death double otitis media developed with some hæmorrhage from the ears. At the *post-mortem* the brain presented the usual appearances of posterior basal meningitis.

My second case of posterior basal meningitis is that of a girl, aged 3. She was first admitted to the surgical side of the hospital, for ill defined pain and weakness of the back. But well-marked symptoms of meningitis appeared in the course of a few days which led to her transference to the medical wards.

From the time of her first admission, she lay, almost motionless, on her side, never on her back. Retraction of the head and flexion of the arms and legs steadily increased, and she emaciated rapidly; thus, on July 6th, she weighed 17lbs., and on August 2nd, only 13½lbs. A loss of one-fifth of her weight in four weeks. The symptoms were in every way typical of posterior basal meningitis, and lumbar puncture showed that a diplococcus, resembling that described by Still, was present in the cerebro-spinal fluid. The child lay for weeks apparently moribund, with at times, well-marked Cheyne-Stokes breathing, and in a state of extreme emaciation in spite of taking a good amount of nourishment. There was only an occasional rise of the temperature above normal, such rises not lasting more than 8 hours. There were only six of these in the four weeks in which she was at her worst. At about the end of the first week in August, after about six weeks in hospital, she slowly began to improve, almost the first sign being a gain in weight. From that time up till the date of writing (October 23rd), she has continued to improve, and now gives promise of making a complete recovery, except that up to the present time she remains blind.

Therapeutic Lumbar Puncture.—With regard to what has been said as to the therapeutic value of lumbar puncture, I feel that I must enter a warning protest. Of the safety and diagnostic value of lumbar puncture with an ordinary sterile syringe I am fully assured, but I am equally sure that a very grave risk attaches to any considerable draining away of the cerebro-spinal fluid, such as is advocated for thereapeutic purposes. In this disease blockage of the meningeal foramena and accumulation of fluid within the ventricles of the brain is a frequent symptom. Under such circumstances relief of pressure in the spinal canal (such as results from free drawing off of cerebro-spinal fluid) will be apt to increase the compression of the medulla by the fluid contained in the ventricles of the brain. This compression may cause sudden and permanent arrest of the heart or respiration by interference with the centres in the floor of the 4th ventricle. Cases are on record where the patient has suddenly died during or shortly after a considerable lowering of pressure of the cerebro-spinal fluid by lumbar drainage.

Question of Epidemic Prevalence. — With regard to Dr. Saundby's suggestion that there is some increase in the prevalence of non-tubercular primary meningitis, my experience seems to coincide with his. I have not, however, been able to find that this experience has been borne out in the case of such other medical practitioners as I have been able to speak with during the last week or two, with, however, one well-marked exception in the case of Dr. Broughton of Langley Green. I regret that he is prevented from being present and joining in the discussion to-day, and I have his permission to say that within the last few months he has had four cases of meningitis in his practice. They were all in children under two years of age. Two of the cases died, and two recovered.

In the two fatal cases, there were convulsions early on, and well-marked retraction of the head. In one of the cases there was some opisthotonus. In the other, the legs were drawn up on the abdomen, and the arms flexed across the chest. There was much irritability at first, but for many days before death they were motionless and rapidly emaciated. Although it was not possible to confirm the diagnosis by a *post-mortem* or bacteriological examination, the symptoms during life seemed to leave no doubt that the disease was posterior basal meningitis.

The two other cases recovered after some seven or eight days of unconsciousness and well-marked but not extreme retraction of the head, and it seemed highly probable that they were suffering from a mild type of the same disease.

In view of the occurrence of even the few cases of which we have heard this afternoon, and in spite of the fortunate absence of any general increase of non-tubercular meningitis, I fully concur in Dr. Saundby's proposition that our medical officer of health should be asked by this Branch of the British Medical Association to reinstate meningitis in the list of causes of death published by him in his Annual Report upon the health of the city.

THE "PRÆSPHYGMIC" INTERVAL IN AORTIC REGURGITATION.

BY PAUL M. CHAPMAN, M.D., F.R.C.P.
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IN July, 1898, I published in the *Lancet* an article on an Unknown Method of Compensation in Aortic Regurgitation.

To make clear the point at issue, I may state that I have long been endeavouring to establish proof as to the increase or diminution of the normal time interval between the cardiac apex beat and the appearance of the radial pulse, in different cases of disease.

The interest of the matter lies in this: In a normal heart, contraction is accompanied by a rise in the intra-ventricular blood pressure. The time occupied in raising this pressure to the level of the pressure in the aorta is measurable, and during this time no pulse wave can appear in the aorta. This time is called the præsphygmic interval, and for a pulse rate of 75 is about ·08″, the whole cardio-radial interval being ·19″. A theoretical assumption following from this is, that if the aortic valves are incompetent for their office, and, consequently, during diastole the left ventricle is refilled by regurgitation from the aorta, we must have a condition of equal blood pressure within the aorta and ventricle at the commencement of ventricular systole. No question can therefore arise as to a rapid increase of blood pressure in the left ventricle during systole from minus to plus, as in health. The aortic and ventricular chambers in aortic regurgitation being continuous, a wave must be set up throughout their contained blood at the commencement of ventricular systole, and therefore the " præsphygmic interval " (better called by the Germans " Anspannungzeit ") is, in aortic regurgitation, abolished.

For a pulse rate of 70, we should therefore, in aortic regurgitation, have a cardio-radial interval of about ·1″ instead of ·19″. All this is in strict accord with physiological reasoning. It has been elevated—or perhaps debased—into a dogma by Keyt.

He states as a "first proposition," that the "præsphygmic interval" is abnormally shortened in free aortic insufficiency.

In the Goulstonian Lectures ("The Physics of the Circulation," 1894), I said that in my opinion this statement is one that should be admitted. Since then I have seen reason to alter my view.

In the *Lancet* article I, unfortunately, fell into the error of publishing a tracing which appeared to show that the heart radial interval might in pure aortic regurgitation be excessively increased, but the tracing I subsequently found to be an inverted tracing, and I immediately withdrew it from criticism. I subsequently obtained a direct tracing from the same case, which showed that the heart radial interval was certainly not *shortened.* For many reasons, amongst others lack of time, defective apparatus, and the absence of suitable cases, the matter had to drop. Lately I have been able to have a private laboratory, and to simplify my apparatus. Owing to the kindness of Prof. Augustus Waller, I have been able to use his delightful and surprising "Digital Sphygmograph" (see *British Medical Journal*, Sept. 22, 1900, page 841), in conjunction with the cardiograph, and with a convenient and inexpensive time recorder invented by him. I had kept the address of a patient suffering from pure aortic regurgitation whom I had not seen for some years, and she kindly consented to be re-examined. She had undoubtedly clear and uncomplicated aortic regurgitation, which had become well compensated, and I obtained from her a combined tracing on August 28th of this year. She is now aged 27. The pulse rate = 70 to 80.

The delay from commencement of cardiac systole to the periphery [with the "Digital Sphygmograph" the tracing is taken from the back of the index-finger nail] was ·19″. This I have found to be normal in almost all cases where disease is absent. There is, however, a slight delay between the radial pulse and the index-finger nail pulse, which may amount in the extreme to ·02″. This would make, if we allow the extreme of delay owing to this cause, a strictly heart-radial interval of ·17″, which is not to be regarded in any way as abnormal.

The explanation I have to give, of what I believe to be the fact, viz., that there is no shortening of the cardio-radial interval in ***compensated*** aortic regurgitation, I have already submitted. It is this, in a normal heart during systole, the rise of pressure in the left ventricle is sudden, owing to the initial low blood-pressure within the ventricle, the muscular contraction of the ventricle on its contents giving rise to a sudden impact against the closed aortic valves, which open as the blood pressure in the ventricle suddenly exceeds the aortic pressure; a rapid wave is thereby produced. In pure aortic regurgitation, it is not to be doubted that the intra-ventricular pressure is already great at the commencement of systole. There being no rapid rise of pressure during systole there is an absence of shock in the causation of the wave at the root of the aorta, and, the wave being caused by steady pressure instead of by an impact, the wave is a slow one.

In the ***Lancet*** article I explained the apparently increased duration of ventricular systole in the case I was then discussing, by the following analogy "to lift a 5 lb. weight in the hand upwards in order to strike a drum, may be a matter of a moment and the resulting impact may be sudden and great; to raise a weight of 50 lb. the same distance would take longer, while the impact against the drum need not be greater than in the first instance." The contraction in pure aortic regurgitation is ***conceivably*** a very slow contraction, but I have no evidence now to offer which shows increased time occupied in systole. So far, my facts are negative as to increased duration of ventricular systole in aortic regurgitation. On the other hand, I have not found abolition of the præsphygmic interval where the compensation is good.

With regard to the use of the terms employed, I think, the application of the term "præsphygmic interval" is unfortunate. For the abolition of the "præsphygmic interval" does not, according to my view, necessarily entail a shortened heart-radial interval. The Germans use the term "anspannungzeit." The analogy is that of starting a draught-horse harnessed to a load.

Before the load is started, a certain time ("anspannungzeit") is occupied in rendering the harness tense. In pure aortic regurgitation the horse and harness are under steady stress from the outset. I have suggested the substitution of the term "isodynamic interval" for "præsphygmic interval." In pure aortic regurgitation, I should say that an isodynamic condition prevailed from the outset, instead of after a period of time. The term would have the advantage of assuming no theory, which is all the more advisable, seeing that the point under discussion, as to whether there is or is not a shortened heart-radial interval in aortic "regurgitation," must be considered unproved. My own experiments are not sufficiently numerous, nor sufficiently clear, to be conclusive even to myself. I can only say that, so far as my proofs go, I am inclined to think (1) that in *compensated* cases of aortic regurgitation there is no diminution of heart-radial interval; (2) that the absence of diminution of heart-radial interval is due to compensation; (3) that the amount of diminution of heart-radial interval may be a measure of the amount of compensation. Complete proof of any one of these propositions would be a distinct gain to clinical medicine.

MEDICAL ABSTRACTS.

REPORT ON RENAL AND URINARY DISEASES.

BY PROF. ROBERT SAUNDBY, M.D., LL.D., F.R.C.P.

GLYCOSURIA AND DIABETES.

Thomson, R. S. *Pertussal Glycosuria with Observations on the Reduction of Fehling's Solution by the Urine in Childhood.—Glasgow Hospital Reports*, 1899.

Dr. Thomson having had his attention drawn to the frequency with which the urine of children suffering from whooping cough reduces Fehling's solution, has made an elaborate investigation into the whole subject. He finds that in about 30 per cent. of such examinations a reduction takes place, and that, as we understand him, it is due to the presence of traces of sugar. The quantity is not sufficient to affect the sp. gr. or the amount of the urine, but it is most frequent during the convulsive stages of the disease. He finds that this glycosuria is much more common in sucklings than in older children. Examinations of the urine of children suffering from a variety of other diseases showed that the presence of this reaction is not uncommon though very much less frequent than in whooping cough, and even the urine of healthy children showed it occasionally.

Brocard. *Glycosuria in Pregnancy.—Paris Thesis*, 1898.

According to Brocard, glycosuria is exceedingly frequent towards the end of pregnancy in multiparæ, but the quantity is small, being as a rule less than 0·2 per cent. Experimental glycosuria may be produced almost invariably during the last two months by administering 100 grammes of glucose. Brocard attributes the glycosuria to diminution of sugar-consumption in the body depending upon slowing of the nutritional processes.

C. Hartwig. *The Colour Reaction of the Blood in Diabetes Mellitus.—Deut. Archiv f. klin. Medic.*, lxii., page 287.

Hartwig points out that the colour reaction described by Bremer and verified by many other observers is met with in other conditions besides diabetes mellitus. It depends upon a chemical modification of the hæmoglobin, which is perhaps especially caused by the presence of sugar in the blood.

Alimentary Glycosuria in Infantile Gastro-Enteritis.— La Semaine Méd., 1900, page 305.

At the Int. Med. Congress, M. Terrier called attention to the frequency with which alimentary glycosuria occurs in nursing infants attacked by gastro-enteritis and attributed this to insufficient action of the liver.

Nobécourt, M. P. *Alimentary Glycosuria in Rachitic Subjects. La Revue Méd.*, February 7th, 1900.

Rickets is a toxic infection of digestive origin in which toxic matters in their transit through the liver affect the functional activity of that organ. Sometimes an enlarged liver is noticed in this condition. M. Nobécourt was able readily to induce alimentary glycosuria in seven out of twelve rickety children with a quantity of glucose which had no effect upon healthy children used to control the result of the experiment.

Leclerc, F. *Glycosuria in Local Asphyxia of the Extremities* (Raynaud's disease).—*La Semaine Médicale*, 1900. No. 38.

M. Leclerc has recorded a case of local asphyxia of the extremities in a young man, which he regards as of purely nervous origin, and assigns for its point of departure a functional lesion of the pons and medulla. Apart from the local asphyxia the patient had many symptoms, such as vertigo, anxiety, eructations. During the crises of local asphyxia he occasionally had glycosuria, which was only transient. M. Leclerc attributes the glycosuria in common with the other symptoms to the lesion of the medulla.

Le Gendre. *Saccharine Diabetes in an Infant.*—*American Journal of Med. Sc.*, March, 1900.

At a meeting of the Société de Pédiatrie de Paris, on Nov. 14th, 1899, Le Gendre reported a case of diabetes mellitus in an infant aged twenty-two months. The child was brought to him on account of increasing emaciation without loss of appetite or digestive trouble, and the only organic lesion found was perhaps a slight increase in the size of the liver. During the examination, the child was agitated and fretful and the nurse gave it a glass of water, which she said was the only thing that would quiet it. The baby drank so greedily that diabetes was suggested and it was found that the child secreted in twenty-four hours 750 grammes (25 ounces) of urine, which contained 13·87 grammes of sugar. In spite of the substitution of a nitrogenous diet the glycosuria and emaciation increased, and five weeks after the disease was recognised the child died comatose. The father's family were gouty, the mother's neurotic and diabetic. The child had had no previous illness, but influenza with double otitis.

Schneider and Müller. *The Value of Bremer's and*

Williamson's Test in Diabetes.—Munch. Med. Woch., June 20th, 1899.

Lucibelli. *Williamson's Test in Diabetes.—Gazz. degli Osped.*, October 29th, 1899.

Schneider finds that a positive result with Bremer's test depends upon the acidity or low alkalinity of the fluid. He obtained a positive reaction in the normal blood of two healthy individuals. It is possible that the method may prove of use in determining the degree of alkalinity of the blood. Müller in the same journal reports that he has employed Williamson's test and has obtained a positive result in non-diabetic cases only twice. It may be obtained in the blood of diabetic patients after this has been freed from sugar by treatment, but becomes less and less marked the longer the sugar has been absent.

Lucibelli found Williamson's test extremely delicate and trustworthy and gave results even when the urine was free from sugar.

Hawthorne, C. O. *Peripheral Neuritis and Retinal Changes in Diabetes Mellitus.—Lancet*, September 30th, 1899.

The author records the case of a diabetic woman, aged 67. In the left fundus oculi were two considerable patches consisting of yellowish white lustrous spots; each patch had a somewhat triangular or fan shaped form, the apex being at the macula; there were also a number of scattered spots over the fundus. The right fundus appeared normal. The urine contained a large quantity of sugar, but no albumen. The knee jerks were absent. There was absolute paralysis of the right external rectus muscle. She had had two severe attacks of sciatica in the left leg.

Grube, K. *On the Loss of Knee-Jerk and of Peripheral Neuritis in Diabetes Mellitus.—Lancet*, July 22nd, 1899.

In furthur elucidation of this subject upon which the author had already published a paper in the *Lancet* of March 17th, 1895, an analysis is given of 332 cases in which the state of the knee-jerk was looked for and noted several times. The results of the analysis are given in tables, but these may be summarised as follow:—The knee-jerk was lost in 25·3 per cent., the loss increasing in frequency with advancing age and being more often observed in mild than in chronic cases. The author explains this by pointing out that the loss of knee-jerks is caused by a neuritis the result of long-standing hyperglycæmia, and that it is only in chronic cases that this condition has time to develope.

Opie. *The Relation of Hæmochromatosis to Bronzed Diabetes.* —*Journ. of Exp. Med.* vol. iv., Nos. 3 and 4.

Opie believes the disease to consist essentially in the widespread deposition of an iron-containing pigment in certain cells leading to their degeneration and death with consequent interstitial inflammation. In a case of hypertrophic cirrhosis and pigmentation related by him glycosuria did not occur up to the time of death, which resulted from an intercurrent attack of typhoid fever.

Berg, H. W. *Diabète Bronzé and the Pathogenesis of Diabetes Mellitus; illustrated by a Case of Bronze Diabetes preceded by Basedow's Disease.*—*New York Med. Record*, December 16, 1899.

Berg has recorded a case of bronzed diabetes which had been preceded nine years previously by an attack of neurasthenia with exophthalmic goitre. Thirst and polyuria began six months before admission. The quantity of urine varied between 70 and 180 ounces; sp. gr. 1030 to 1034; sugar 4—5 per cent. The pigmentation of the skin was chiefly marked on the face, chin, and forearms. The liver could be felt two finger breadths below the free border of the ribs. The paper, which is a long one, gives a good account of the history of our knowledge of this disease, the author's own opinion apparently leaning towards the nervous origin of this affection, which he admits must be looked upon, not as merely a complication of diabetes by bronzing and enlargement of the liver, but as a distinct type of disease.

In the discussion which followed Dr. William H. Thomson was inclined to accept the theory that the disease was the result of a toxæmia having its origin in the intestinal tract. This poison acts as an irritant in the portal circulation causing the deposit of iron in the liver and the bronzing of the skin. Dr. S. J. Meltzer said he believed this was the first case which had been observed in a woman. Dr. Manges disputed the diagnosis and doubted whether the case should be considered one of bronzed diabetes.

Saundby, R. *Diabetes Mellitus.—Practitioner*, July, 1900.

Glycosuria results from the introduction into the blood of a larger amount of sugar than can be consumed by the tissues. Sugar is formed not only from carbo-hydrates, but from albumen, in the proportion of two parts of sugar to one part of urea. The tissues consume less sugar as age advances and fat accumulates, so that the total sugar-consuming capacity of a man between fifty and sixty may be little more than half of what it was when he was twenty. Under these circumstances, it is easy to understand why stout elderly people readily become glycosuric. The liver normally stores up glycogen which is derived from the sugar formed from food. Under certain influences, notably shock, the influence of certain poisons, diseases of the nervous system of the pancreas and of the liver itself, the power of storing glycogen becomes diminished or lost. The sugar-consuming capacity of the tissues seems to suffer diminution when they receive an excessive supply of sugar. When the blood contains more than a certain percentage of sugar it passes into the urine, and when the hyperglycæmia is excessive and prolonged, thirst, polyuria, and failure of nutrition follow. Alimentary glycosuria is a term employed to express the appearance of sugar in the urine as a result of simple excess of alimentary sugar over that which the tissues can consume. It should be removable by reducing the amount of carbohydrate food. If unchecked, it may pass into diabetes owing to the great depression of the sugar-consuming capacity of the tissues and to the consequent supervention of thirst, polyuria, and failure of nutrition. The treatment of diabetes must therefore be mainly by diet, its object being to relieve the tissues of the excess of sugar which is reaching them. The dietary should be constructed upon strictly scientific principles so that while withholding carbo-hydrates it should afford the patient sufficient food to supply the needs of his body. A person weighing 140 pounds and taking moderate exercise without hard work requires a diet representing 34·9 heat units for every two pounds of body-weight, or a total of 2,400 heat units. To this, in the case of a diabetic, we must add an allowance to compensate for the sugar excreted unconsumed.

The heat values of food are for

1	gramme of	albumen	4 heat units.
1	,,	carbo-hydrates	4 ,, ,,
1	,,	fat	9 ,, ,,
1	,,	alcohol	7 ,, ,,

A strict diabetic dietary must be made up of albumen, fat, and a little alcohol. The following dietary gives 2450 heat units and contains not more than 500 grains of sugar-forming carbo-hydrates:—6 oz. cooked meat; 2 oz. fat bacon; 2 eggs; 2 oz. cream; 3 oz. butter; 3 oz. cheese; 6 oz. green vegetables; 9 oz. Callard's brown loaf; ½ pint bouillon; 1 pint tea; ½ pint claret; 2 oz. Scotch whiskey. If on this diet the sugar disappears from the urine small quantities of carbo-hydrates may be cautiously added in limited quantities. For example, ½ pint of milk, 6 oz. of such green vegetables as contain a low percentage of starch or sugar of which a table is given, 4 oz. of bread or toast. It must be borne in mind that diabetic patients who are taking a diet tolerably rich in carbo-hydrates are not exempt from the risk of a return of hyperglycæmia. In order to diminish this danger the patient should abstain from all carbo-hydrate extras on one day in each week, and if the consumption of sugar in the body, as indicated by analysis, undergoes a reduction, strict diet should be again enforced for two or three weeks. The paper concludes with some remarks upon the value of drugs and mineral water cures, and contains diet tables and a table giving the carbo-hydrate values of a considerable number of articles of diet.

The Pathogenesis of Diabetes.—La Semaine Médicale, 1900, No. 38.

At the International Medical Congress a discussion took place in the section of General Pathology upon diabetes.

Dr. Pavy advanced his well known views, maintaining that the cause of the hyperglycæmia, which he regards as the essential condition in diabetes, must exist between the seat of absorption in the intestine and the hepatic vein. According to him the carbo-hydrates are normally transformed into fat, built up into albuminoids, or converted into glycogen. If these changes do not occur the sugar passes as such into the blood and is excreted by the kidneys. He also recognises a complex and graver form in which the sugar is formed by disintegration of the tissues. In this latter form its elimination is accompanied by other products, such as oxybutyric and diacetic acids.

M. Lancereaux assigned all cases of diabetes to organic or functional disturbance of the pancreas either as a primary disease of that organ, or in consequence of some disorder in the medulla which presides over its functions, so that where the pancreas is affected by fatty degeneration, sclerosis, or troubles of innervation, or temporary paralysis by an attack of pancreatic colic, it is to the alteration of the functions of the pancreas that the glycosuria must be attributed.

Prof. Lépine was more eclectic and recognised that other organs besides the pancreas may be at fault. He attributed great importance to diminution of the glycolytic power of the blood. This glycolysis is not solely due to the pancreas, which merely assists in the action by its internal secretion, this secretion probably also favouring the storage of glycogen in the liver.

Professor Bouchard thought the opinions of MM. Lancereaux and Lépine not incompatible because the glycolytic substance was derived from the pancreas.

M. Charrin maintained that insufficient destruction of sugar was constantly present in pregnancy. This insufficient glycolysis is related to the general diminution of the activity of the processes of oxidation. Moreover animals subjected during several months to injections of an acid solution assimilate less sugar than those in which injections of alkaline solutions are used.

M. Rappin thought that too little attention was paid to the influence of the organised ferments of the intestine. The researches which he had carried out with M. Fortineau upon the production of sugar in culture media to which starchy substances were added, such as bread, starch, and potato, and inoculated with the different bacteria normally inhabiting the intestine, such as the bacillus coli, the bacillus mesentericus vulgatus, etc., showed that some of the microbes produced sugar while others destroyed it when formed.

M. Mossé stated that his observations had shown that certain diabetics could take for a time varying from fifteen days to a month daily doses of 1500 grammes (3lbs.) of potatoes as a substitute for bread with benefit. He had seen favourable results in both acute and chronic cases, but in confirmation of what M. Charrin had just said, he had not obtained good results from its use in the glycosuria of pregnancy.

M. Desgrez thought that perhaps these results were due to the carbohydrates contained in potato being eliminated with the fæces.

M. Brocard was of opinion in opposition to that expressed by M. Mossé that the use of potatoes was indicated in the glycosuria of pregnancy. He thought the diminution of polyphagia and polydipsia observed to follow the prolonged use of potato was explained by the fact that this vegetable is richer than bread in cellulose and in water.

Saundby, R. *The Nitro-Propiol Test for Sugar.—Lancet*, March 24th, 1900.

Teusch has introduced the Nitro-Propiol test for sugar, the salt being supplied in tablets. The directions are to dissolve one tablet in about three drachms of water, add ten drops of the suspected urine, and boil slowly for from three to five minutes. If sugar is present, a fine colouration of indigo blue is said to take place, the indigo being deposited when the fluid is allowed to stand. The reaction failed with a urine which had contained sugar for a long time and gave by Fehling's solution 0·8 per cent. S. then examined a urine which deposited an abundant sediment of uric acid and reduced Fehling's solution until it had been filtered through animal charcoal according to Roberts' method when it no longer gave this reaction, but it formed a blue film of indigo after boiling in a capsule with Teusch's test. This urine was then examined by fermentation and with phenyl hydrazin, but gave a negative result with each. S. concludes that nitro-propiol does not possess any advantage either in its rapidity of application, delicacy, or accuracy, over Fehling's solution.

Masuyama and Schild. *Treatment of Diabetic Steatorrhœa, with Pancreas Preparations,-Zeitschr. f. diät. und phys. Therapie.*, 1899, Vol. iii., p. 481.

The occurrence of chronic steatorrhœa in diabetes points to organic changes in the pancreas. Experiments on animals by Abelmann and Minkowski speak in favour of the therapeutic use of pancreas feeding and improvement seems to have been noticed after treatment with calf pancreas (Fles and Langdon-Down) and with pancreatin (Friedreich and Oser.) Von Noorden observed in one case that the administration of fresh pancreas reduced very considerably the amount of fat lost in the fæces. The authors record a case of a man, aged 52, under Von Noorden's care, whose fæces were fatty, only 36·9 per cent. of the ingested fat being absorbed. When 100 grammes of scraped pig's pancreas were given in addition to the diet the absorption of fat rose to 62-58 per cent., and after withdrawing the pancreas the absorption fell to 37-25 per cent. Pancreatic juice increased the absorption of fat only to 45-51 per cent. Pancreatic substance seems therefore to have a greater value than pancreatic juice for the treatment of steatorrhœa in diabetic patients. It is doubtful whether pancreatin tablets have any real therapeutic value.

Oliver, T. *A case of Diabetic Coma successfully treated by Saline Transfusion.—Lancet*, August 2nd, 1899.

Roget and Balvay. *A case of Diabetic Coma relieved by Copious Injections of Saline Solution.—Lyon Méd.*, January 8th, 1899.

The cases were—1. A diabetic patient, aged 30, who left the infirmary with the intention of going home, but was found that evening in a state of deep unconsciousness in a railway carriage. He was brought back to the infirmary and at once treated by transfusion of 2½ pints of salt solution passed into the right median basilic vein. By degrees consciousness was regained and he recovered sufficiently to leave the infirmary. He died rather suddenly, 243 days afterwards at his own home.

2. A young man, aged 20, was admitted into hospital passing 283 grammes of sugar in twenty-four hours. On July 2nd, he had an epileptic seizure which became aggravated, violent headache alternating with convulsive seizures, while coma supervened on August 1st. Acetone and oxybutyric acid were present in urine. On August 4th, he had an intravenous injection of a litre of 0·7 per cent. salt solution and at midnight on August 5th, another of the same amount. On the evening of the 6th, at an interval of one hour, he had two subcutaneous injections of two litres of the same fluid. On the 7th and 8th, he had subcutaneous injections of half a litre, on the 9th, a similar injection of a litre, and on the 10th, a litre. Improvement commenced on the 7th, and on the 12th, he was sufficiently conscious to control his urine. The patient was always able to drink and swallow quantities of alkaline water during the above period!

Hepatic Opotherapy in Diabetes.—La Semaine Médicale, 1900, No. 37, p. 302.

At the International Medical Congress M. Gilbert drew attention to the recent experience of the employment of liver substance in the treatment of diabetes, and said that sometimes the sugar diminished or disappeared, sometimes it had no appreciable influence, while in others it caused an increase. He attributed these differences to the fact that it is only where the diabetes is dependent upon functional insufficiency of the liver characterised by diminution of urea, urobilinuria, etc., that any good results from this treatment, and that in the more common case where the diabetes depends upon increased activity of the liver its employment does harm.

Guiranna. *The Treatment of Diabetes.—La Clinica Medica*, An. 5, n. 19.

The author speaks highly of the benefit derived from an exclusive diet of fresh vegetables in the treatment of diabetes. He recommends the use of endive, cabbage, French beans, artichokes and in general all green vegetables. Peas and beans, if fresh, may be taken in small quantities (½ pound). The author also allows fruits in moderation.

Williamson, R. T. *Sugar Excretion in Diabetes.— Brit. Med. Journal*, March 10th, 1900.

While admitting the difficulty of being certain that the diminution of sugar excretion is actually due to medicinal treatment, Dr. Williamson said that he was inclined to believe that in three cases of mild diabetes in old people the sugar excretion was favourably influenced by the administration of salicylate of soda, as after its use they were allowed to take as much white bread as they wanted, potatoes and sugar being practically the only food excluded. On this regimen the sugar excretion diminished or disappeared. He found it necessary to increase the amount of sodium salicylate to 80 or 100 grains per diem and had not found any serious inconvenience from these large doses.

Mathieu. *Diabetes Insipidus and Hysteria.—Progrès Médical*, February 18th, 1899.

Polyuria is often associated with hysteria and sometimes according to Babinsky is the only symptom of hysteria. It may disappear under the influence of suggestion. The truth of this opinion is disputed by Gilles de la Tourette. Hayem has noted that in diabetes insipidus the total excretion of nitrogen is usually increased. This contra-indicates the theory of simulation. Ehrard has observed that in hysterical polyuria, chlorides are excreted in abnormal amounts while the urea is not increased, indeed, is usually diminished.

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION.

BIRMINGHAM AND MIDLAND COUNTIES BRANCH.

Session 1900–1901.

The First Ordinary Meeting of the Session was held in the Medical Institute, on Thursday, October 11, 1900, at 3.30 p.m., the President, Dr. MILNER MOORE being in the Chair.

Fifty four members and three visitors were present.

The Secretary read a communication from Mr. Fowke enclosing a copy of the Report of the Committee on the Early Decay of Teeth in Britain. The report was laid upon the table for the use of any member interested in the subject.

The following gentlemen were elected Members of the Branch, viz.:—Sidney Barwise, M.D., Derby; G. W. Brown, M.B., C.M., Oakengates; C. G. Higginson, L.R.C.P., M.R.C.S., Birmingham; and J. McGlashan, M.B., C.M., Bedworth.

Vermiform Appendix.—Mr. Jordan Lloyd showed a Vermiform Appendix containing a fishbone and the skin of a small seed. The patient, a lady, aged 29 years, had had during the previous ten weeks three attacks of abdominal pain and constipation, and for seven days before operation obstruction had been complete, and it was for this condition that surgical interference was called for. The obstruction was found to be due to adhesions of the transverse colon and its attached omentum to the cæcum and meso-cæcum. The appendix lay quite free behind and below the cæcal head and was successfully removed in the usual way. Its terminal half inch only was thickened and inflamed.

Renal Calculus.—Mr. Morrison showed a Renal Calculus which he had removed together with the greater part of the right kidney on Sept. 12, 1900, from a gentleman, aged 53, whom he had attended with Dr. Huxley. The calculus was virtually a cast of the kidney-pelvis; it was four inches long, weighed just less than an ounce, and presented tuberous processes corresponding to the calyces. The patient had suffered from pain in the right loin as long as he could remember, and when 18, had passed a stone *per urethram.* Otherwise, his health had been uniformly good until some four months ago when an increase of the lumbar pain was followed by an abscess, which burst in the right buttock leaving an unhealed sinus. Exploration, under anæsthesia, traced the sinus to the stone embedded in foul disorganised kidney substance, which was removed. The nephrectomy was difficult owing to the matting of adjacent structures consequent on the chronic inflammation, and a portion of the kidney was left behind in the pedicles. The ascending colon was disturbed in separating adhesions, and two days after operation there was a slight leakage of liquid fæces, which continued for several days and then ceased. The patient is now convalescent.

Non-Tubercular Meningitis.—Dr. Saundby read a paper on Non-Tubercular Meningitis with especial reference to its etiology, and a discussion followed in which Dr. Hugh Thursfield, Professor Leith, Dr. Codd, Dr. W. R. Jordan, Dr. Kauffmann, and Dr. Stacey Wilson took part.

Dr. Saundby replied to the various speakers, and moved "That Dr. Alfred Hill be requested to restore the heading Meningitis to the list of causes of death published by him in his Annual Reports upon the health of this City."

The motion was seconded and unanimously adopted.

REVIEWS.

HISTOLOGY OF THE BLOOD.*

THIS work is simply an account of the blood in both normal and pathological conditions, and it does not aim at clinical description of the diseases which shew blood changes as their dominant characteristic. The first part deals purely with general questions, such as number, size of the corpuscles, specific gravity, alkalinity and coagulability of the blood. These are points which do not call for review. There then follows an account of the morphology of the corpuscles, together with various methods of blood examination, to be followed by a description of the normal and pathological histology. That change which is called polychromatophil degeneration is very clearly explained. It is only recognisable in stained preparations in which especially hæmatoxilic eosine is used. Stains containing methylene blue are unsuitable as the least excess of blue tint would vitiate observation. It has been suggested that polychromatophil degenerations are not of a pathological nature so much as a stage in the development of the young cells. This does not receive the support of the authors, who give many arguments to shew that the change is degenerative or destructive in character. Polychromatophil discs appear in inanition in cases of acute loss of blood, while nucleated red cells especially megaloblasts shew a similar change. The value of nucleated red corpuscles is discussed. The ordinary form (normoblasts) is, according to the authors, much more common than is generally supposed. Their intense colour reactions render them easy of recognition. They are "found almost invariably in all severe anæmias that are the result of trauma, inanition or organic disease of some kind." "Megaloblasts on the contrary are never found in traumatic anæmias." It is in the pernicious forms of anæmias that megaloblasts are most frequently seen. Their presence, therefore, is of bad prognosis, except in that form of anæmia due to bothriocephalus. In this last condition, they seem to occur not infrequently, without darkening the outlook of the case.

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* Histology of the Blood, Normal and Pathological. By P. Ehrlich and A. Lazarus. (Translated by W. Myers, M.A., M.B.) Cambridge: Univ. Press.

As might be expected, the description of the various white corpuscles is long, and the general facts which it contains do not call for any comment. Myelocytes appear in some infectious form of disease. Thus their occurrence in diphtheria has been described by Engel, who has found as many as 16·4 of white corpuscles to consist of myelocytes, and according to this author, their occurrence in such numbers points to an unfavourable prognosis. Myelocytes appear at the time of the crisis, or directly after in acute pneumonia. The place of origin of the white corpuscles is one of the most interesting chapters in the book, but unless all the arguments be weighed one with another, it loses in value, and we cannot therefore epitomise in any satisfactory manner.

In speaking of the spleen, however, we may give as the conclusion of various researches that this organ plays a quite unimportant part in the formation of white corpuscles. Possibly a few of the smaller corpuscles originate in this organ, for the larger and more important kinds are not derived from it. The bone marrow produces in considerable numbers specific cells, which fall into two groups, the eosinophil and the basophilmast cells. Certain other cells therein formed do not pass over into the blood stream under ordinary circumstances. Such, for instance, are the mononuclear and transitional forms of the neurophil group.

Leucocytosis seems to be purely functional in bone marrow according to Ehrlich, and its rapid appearance under certain circumstances would seem to indicate that the cells causing the phenomenon are stored somewhere ready for immediate use. This storing seems to be in the bone marrow. The different forms of leucocytosis, such as toxic, cachectic and that occurring in infectious processes are all described. The author passes on to the description of the blood in leukæmia chiefly from the point of view of the independence of the various corpuscles. Leucopenia, blood platelets, their origin, recognition, and characters, are all fully described. Our impression of this book is that it is one of very great value. There are others, it is true, which are larger, but the point in the present work is great conciseness, while in referring to most points the evidence is carefully and fully detailed and weighed.

DOUGLAS STANLEY.

MEDICAL AND SURGICAL REPORTS OF THE PRESBYTERIAN HOSPITAL, NEW YORK, Vol. IV.

We have received the fourth volume, which has been unavoidably delayed, of these valuable reports. The first article is one on "The Surgical Treatment of Ascites due to Cirrhosis of the Liver," by F. Tilden Brian, M.D. The writer advocates free incision and prolonged drainage by a glass tube reaching into the pelvis. The subject is one which has attracted much attention of late in this country, and we may therefore give the author's conclusions :—1. The more rapid have been the accumulations of ascitic fluid, the greater the reason to provide for long continued drainage which is to follow the operation and to expect that very gradual improvement in all symptoms is the next and best that can be hoped for.

2. In these advanced and apparently hopeless cases of rapidly recurring ascitic accumulation, the three things of greatest import appear to be (*a*) The full appreciation before operation of the necessity and provision for a constant and thorough aseptic pelvic drainage; (*b*) The general observance of a rational aseptic operative technique; (*c*) Strapping to keep in approximation the denuded peritoneal surfaces. This keeps the fluid down in the pelvis.

Dr. W. P. Northrop contributes a report of a case of Typhoid Fever in an infant nine months old. This is undoubtedly one of the youngest cases of typhoid recorded, for the disease shows little tendency to affect children under two years of age. The diagnosis was confirmed by the Widal Reaction. It is pointed out by the writer that scepticism of such a diagnosis should be encouraged unless in the presence of other cases as was so in the present instance.

Dr. Stuart Hart has an article on Suppurative Hepatitis, which is interesting as showing the various types of this disease. Infection may enter (1) by the portal vein—the most frequent; (2) by the hepatic artery, and (3) by the bile passages. The bearing of the means of entrance on any operative treatment is of considerable importance.

Many of the articles are the results of careful research, and cannot fail to be of use and interest.

DISEASES OF THE NOSE AND THROAT.*

The author has been successful in bringing out a book which may be perused with advantage by students and members of the medical profession who have not time to study the more voluminous works on the subject.

To keep the work within the scope for which it is intended, certain diseases have merely been mentioned or passed over. While we agree that in a work of this kind diphtheria may be thus treated, we think that disease of the frontal sinus might have had more space allotted to it as it comes distinctly within the province of the rhinologist.

We are glad to find special attention directed to the fact that most cases of even slight purulent rhinitis in children are due to the presence of adenoid growth in the naso-pharynx, as when the obstruction to nasal breathing is not marked, this condition is apt to be overlooked.

In discussing acute inflammation of the accessory sinuses of the nose, mention is made of this being due sometimes to tampons being left in the nasal cavities for a too lengthened period; this is very important, as it is frequently lost sight of when the nose is plugged for an attack of epistaxis.

Our own experience coincides with the author's in regard to the trans-illumination of the maxillary antrum, the umbra at times, even when pus is present, not being sufficient to justify operation without the presence of other equally positive signs. In such cases we have generally found the ethmoid or frontal sinuses involved, and it is probable that the antrum has become a recent reservoir for the drainage from one of the other sinuses; thus its mucous membrane has not become thickened nor opaque. The various operations for the relief of this condition are briefly described.

The book contains drawings and coloured plates, original and copies from other text books, of various diseases, instruments, etc., some of them representing frozen sections of the head being very good. Many useful prescriptions are given; these are in the metric system, but they are generally repeated at the foot of the page in apothecary's measure.

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* Disease of the Nose and Throat. By J. Price Brown, M.B., L.R.C.P.E. Laryngologist to the Toronto Western Hospital. Philadelphia and London: The F. A. Davis Co. 1900.

The type is good, the book easily readable, and it should form a useful addition to the general practitioner's library.

GOLDEN RULES OF OPHTHALMIC PRACTICE.*

THIS is perhaps the best and most useful number of the "Golden Rule" series, so far as it has yet appeared. The ignorance with regard to ophthalmic surgery which many of our examining bodies still tolerate in the candidates for their diplomas is almost a justification for the provision of a series of "tips" such as are supplied in this series. We do not as a rule care for such publications, but they are perhaps least objectionable when applied to special departments of medicine and surgery in which the ordinary practitioner does not profess to be an adept.

THE PHYSICAL EXAMINATION AND DEVELOPMENT OF PUBLIC SCHOOL BOYS.†

THIS paper was read before the Medical Officers of Schools Association, and has for its object the establishment both of reliable standards with which the growth of any individual boy in various directions may be compared, and of a convenient method for the graphic representation of such particulars. Mr. Hawkins' system needs careful study before its advantages can be fully understood, and it is far too complicated for reproduction here. Its comprehension, however, is much facilitated by the numerous curves with which the paper is illustrated. Many of these are in themselves of much interest, being the outcome of measurements taken from many thousand scholars of Haileybury College, and they form a valuable addition to our present knowledge of these matters. We fully agree with Mr. Hawkins in his appeal for more careful and systematic observations on the physical development of boys at the various large schools in the country, and in his belief in the value of the results which would accrue from such observations.

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* Golden Rules of Ophthalmic Practice. By Gustavus Hartridge, F.R.C.S., Senior Surgeon, Royal Westminster Ophthalmic Hospital; Ophthalmic Surgeon and Lecturer on Ophthalmology, Westminster Hospital. Bristol: John Wright and Co.

† The Physical Examination and Development of Public School Boys, based upon records of over 40,000 observations. By Cecil Hawkins, M.A., Haileybury College. London: J. and A. Churchill, 1900.

New Books, etc., Received.

From the Meng Publishing Company—
  Brain in Relation to Mind. By J. Sanderson Christison, M.D. Second Edition.

From the F. A. Davis Company—
  Practical Uranalysis and Urinary Diagnosis. By Charles W. Purdy, LL.D., M.D. Fifth Revised and Enlarged Edition.

We have also to acknowledge the following—
  A Simple Operation for Divergent Strabismus and other Papers. By L. Webster Fox, M.D.
  On the Treatment of Metacarpal Fracture and other Papers. By Carl Beck, M.D.
  Transactions of the Grant College Medical Society, Bombay, from January to December, 1899.

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THE

BIRMINGHAM MEDICAL REVIEW.

DECEMBER, 1900.

ORIGINAL COMMUNICATIONS.

COXA VARA.

BY W. E. BENNETT, F.R.C.S.,
HONORARY SURGEON TO THE ORTHOPÆDIC AND SPINAL HOSPITAL.

CONTRARY to deformities of other parts of the body, those of the hip-joint have recently surprised the surgical world by opening up a new field of discovery. There are various reasons for this, the chief being the variability of the normal curvature of the neck of the femur: again, the inaccessibility of the hip-joint to direct examination, and the rule of classing all painful affections of the hip-joint as morbus coxæ; finally the addition to our power of diagnosis afforded by the discovery of the Röntgen rays.

During the last twelve months four cases of disease of the hip-joint have come under my notice, which although at first diagnosed as cases of early morbus coxæ, I have, on a careful review of the signs and symptoms, together with photographs taken by means of the Röntgen rays, since recognised as examples of a disease which has of late engaged the careful attention of surgeons all over the world. This condition is termed coxa vara, and consists of a deformity of the upper epiphysial region of the femur, owing to which the head of that bone sinks to a lower level than normal, even in extreme cases almost touching the lesser trochanter.

The first indication of any departure in this new field was contained in a paper by Roeser[1] who described a specimen found at a *post-mortem* on a boy of 19, in which the femoral neck was curved downwards and backwards at right angles to the shaft. This had existed for some years, and during life was characterised by adduction of the leg and rotation outwards of the limb; there was no evidence of disease in or around the joint.

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[1] Roeser. Ueber Morbus Coxarius. (Correspond. Bl. des Württemb. ärstl. Vereins, 1843, No. 25.

The next writer on this subject was Richardson[2] who described a specimen found, *post mortem*, of the upper end of the femur of a youth of 20, which was thought during life to be due to fracture of the neck; the angle formed by it, and the shaft being only 45 degrees; the head of the bone being below the level of the great trochanter; there was no indication whatever of fracture or disease.

The next contribution to this subject was a paper by Keetley,[3] who had operated successfully on a girl for curvature of the neck of the femur; the angle formed by the neck to the shaft of the bone was about forty-five degrees. The operation was subtrochanteric osteotomy. He attributed the condition to late rickets, his house surgeon having found distinct evidence of this condition in the bone removed. After this, Müller[4] collected four cases of this condition in patients whose ages ranged from eleven to fourteen years. The symptoms noted being more or less pain, shortening, the limb hanging slightly flexed and everted; the great trochanter being found from one to three centimetres above Nélaton's line, abduction and internal rotation being limited. Upon one of these cases, in which the symptoms were most marked, he operated and found that the angle made by the neck to the shaft was less than normal, being almost a right angle. He thought the condition to be one of late rickets, and the deformity due to the weight of the body acting on the softened neck.

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[2] Richardson. Deformity of the neck of the thigh-bone, simulating fracture with ossific union. (Transact. of the Philadelphia Pathol. Soc., 1857.

[3] Keetley. A Case of Rachitis Adolescentium. *Illust. Med. News*, 1888, I., No. 7.

[4] Müller. Die Verbiegung des Schenkelhalses im Wachstumsalter. *Beiträge z. Klin. Chir.*, xv. 1.

Subsequently, Royal Whitman[5] published a paper on Bending of the Femoral Neck in Adolescents. He describes four cases occurring in children whose ages varied from eleven to seventeen years.

Kirmisson[6] about the same time, described the curvature of the femoral neck occurring in rachitic children. It is, however, due to Kocher[7] and Hofmeister[8] that the phenomenon of downward curving of the neck of the femur took a definite name and place in the pathology of diseases of the hip-joint. These two surgeons were simultaneously struck by the analogy of this condition with the similar in-curving of the leg in genu varum and of the foot in talipes varus, and they decided to adapt the same type of nomenclature to this condition, naming it "Coxa Vara." Müller in his paper suggested the name "Coxa Adducta," but this has not been adopted.

Hofmeister in his paper brought forward a series of thirty-three cases, culled from the statistics of six hundred cases of hip-joint disease treated at the Tübingen Clinique, under M. Bruns. In this paper Hofmeister established a typical picture of the disease, and described three varieties, according to the resulting signs and symptoms.

Soon after this Ogston[9] published a paper on coxa vara, in which he reported five typical cases, and insisted on the rachitic origin of the disease. Another variety of this condition was described by Kredel[10] as occurring in very young children, which he named "Congenital Coxa Vara." Kirmisson[11] substantiated Kredel's observations, and distinguished between this variety and that which he had already described as coxa vara occurring in rachitic children (coxa vara de l'enfance.) A type of the disease has been described as coxa vara of adult life; the only evidence of such condition as yet adduced appears in certain cases of osteo-malacia, in which, together with the general bending of the bones, the neck of the femur being in the direct line of the body-weight, has curved as a result to almost a right angle.

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[5] R. Whitman. Observations on Bending of the Neck of the Femur in Adolescence. *New York Med. Journ.*, 23rd June, 1894.

[6] Kirmisson. L'affaissement du col du fémur sous l'influence du rachitisme. *Rev. d'Orthopéd.* 1894, No. 5.

[7] Kocher. Ueber Coxa vara, eine Berufskrankheit der Wachstumsperiode. *Deutsche Zeitsch. f. Chir.*, xxxviii., 6.

[8] Hofmeister. Coxa vara, eine typische Form der Sehenkelhalsverbiegung. *Beiträge z. Klin. Chir.*, xv., 1.

[9] Ogston. Coxa vara, *Practitioner*, April, 1896.

[10] Kredel. Coxa vara congenita. *Centr. Bl. f. Chir.*, Oct. 17, 1896.

Coxa vara may be classified according to the age of the patients in which it occurs, namely:—

1. Congenital—Coxa vara congénitale (Kredel).
2. Childhood—C. V. de l'enfance (Kirmisson).
3. Adolescence.
4. Adults—Osteo-malacia.

This paper is principally concerned in the description of the third variety in this classification, namely, the coxa vara of adolescence. This condition, according to the signs and symptoms, may be again divided into three groups, and Hofmeister has arranged them thus:—

The first group being characterised anatomically by downward displacement of the head of the femur and elevation of the great trochanter above Nélaton's line; the only signs being shortening of the limb and prominence of the great trochanter, and the only symptoms being more or less pain at the hip-joint and limited power of abduction, together with a slightly limping gait.

The second group has all the characteristics of group (1), and in addition there is diminution of internal rotation, due to the curving backwards of the head of the bone, the limb generally being slightly everted.

3. In addition to the characteristics of group (1), there is

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[11] Kirmisson. Nouveaux faits pour servir à l'étude de l'incurvation rachitique du col fémoral. Coxa vara d'origine congénitale. *Rev. d'Orthopéd.*, 1897, p. 303.

diminished external rotation, due to the head of the bone being curved forwards, the foot and limb generally being inverted.

The ætiology of coxa vara of adolescence is obscure. Keetley, in his case, found distinct evidence of rachitic change in the bone removed at his operation. Müller was of the same opinion, but found no distinct evidence in the bone itself. Kocher and Hofmeister while admitting the probability of rickets as the cause of the softening of the bone, were not absolutely convinced of this, and put forward the theory that any inflammatory condition of the neck of the bone, either due to traumatism, localised osteo-myelitis, or incipient tubercular inflammation, may have the same effect. In my own cases, four in number, two have a definite history of injury to the great trochanter on the affected side; but in both these cases the character of the employment necessitated standing for many hours together, and in one, the factor of carrying moderately heavy weights, was superadded. Of the other two cases, in one the disease of the hips followed an acute illness. In the fourth case, the onset was slow and there was no history of traumatism. In two of the cases, coxa vara of the right leg is combined with slight genu valgum of the same side.

Coxa vara occurs more frequently in males than in females. Of ninety cases noted in current medical literature, sixty-eight were of the male sex.[12] It is usually unilateral; the proportion to bi-lateral cases being five to three. Of my own cases, two are males and two females, all are unilateral, three of the right leg and one of the left.

The usual age of onset is between eleven and eighteen years. Out of the ninety cases above quoted, sixty-one were between these ages. In my own cases the ages are ten, twelve, sixteen and seventeen years.

The onset of the disease is usually slow; early fatigue, limping and pain, being the earliest symptoms; sometimes the onset is sudden and attributed to injury, but on careful inquiry the history of previous trouble about the affected joint will be extracted. One of my cases had had pain on and off for two years and then a fall determined her to seek advice. In one case, the boy had had repeated falls on to the same hip.

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[12] *La Semaine Médicale*, page 92, 1898.

Signs and Symptoms.—The pain is more or less acute, and localised to the hip-joint; sometimes it is referred to the knee and down the leg. In all my cases the pain was localised to the hip-joint. The pain disappears easily with rest in bed; there are no shooting pains at night: passive enarthrodial movements are without pain; there is no tenderness or thickening around the head and neck, although the lateral prominence of the great trochanter may give, in some cases, a false sensation of increased breath of that bone.

Passive movements of the joint are practically painless, although limited in certain directions. In all, abduction is limited. In the second variety of Hofmeister's classification, internal rotation, and in the third, external rotation is limited. The shortening varies, being rarely more than one inch and a half, the great trochanter being that distance above Nélaton's line, and Bryant's triangle being converted from an equi-lateral to an isosceles triangle. In my own cases, the least shortening is half an inch and the greatest an inch and a quarter.

Posture.—The patient usually stands with the affected limb and foot everted and slightly flexed. In very severe bi-lateral cases, the deformity known as "scissor-leg" results. The lateral prominence of the great trochanter is very marked when the hip is flexed.

The Gait depends upon the amount of shortening and whether the condition is unilateral or bi-lateral. In slight unilateral cases there is merely a limp; but in severe cases, both unilateral and bi-lateral, the waddling gait resembles that of congenital dislocation.

Diagnosis—1. First of all from morbus coxæ. In contrasting this condition with morbus coxæ, one finds the gentle, passive movements and pressing the head of the bone into the acetabulum are not painful; there are no starting pains at night; as a rule, wasting of the thigh is much less marked, though not absent. The head of the bone can be felt in the acetabulum however high the trochanter may be, and it is not tender to direct pressure. Pain is usually relieved by rest even without fixation.

2. From congenital dislocation.

The head of the bone can be localised external to the acetabulum in nearly all cases of congenital dislocation; the looseness of the joint as compared with the stiffness of the joint in coxa vara; the length of the limb can be affected by extension in congenital dislocation, whereas it cannot be so affected in coxa vara.

3. From dislocation of the Femur on to the Dorsum Ilii.

4. From fracture of the neck of the Femur; the upper part of the shaft, or separation of the Epiphysis.

In this condition the crepitus and the history should be our guides in recent cases; in more remote cases the Röntgen rays are the only means of distinction. Hofmeister insists on the Röntgen rays as the only positive evidence of coxa vara.

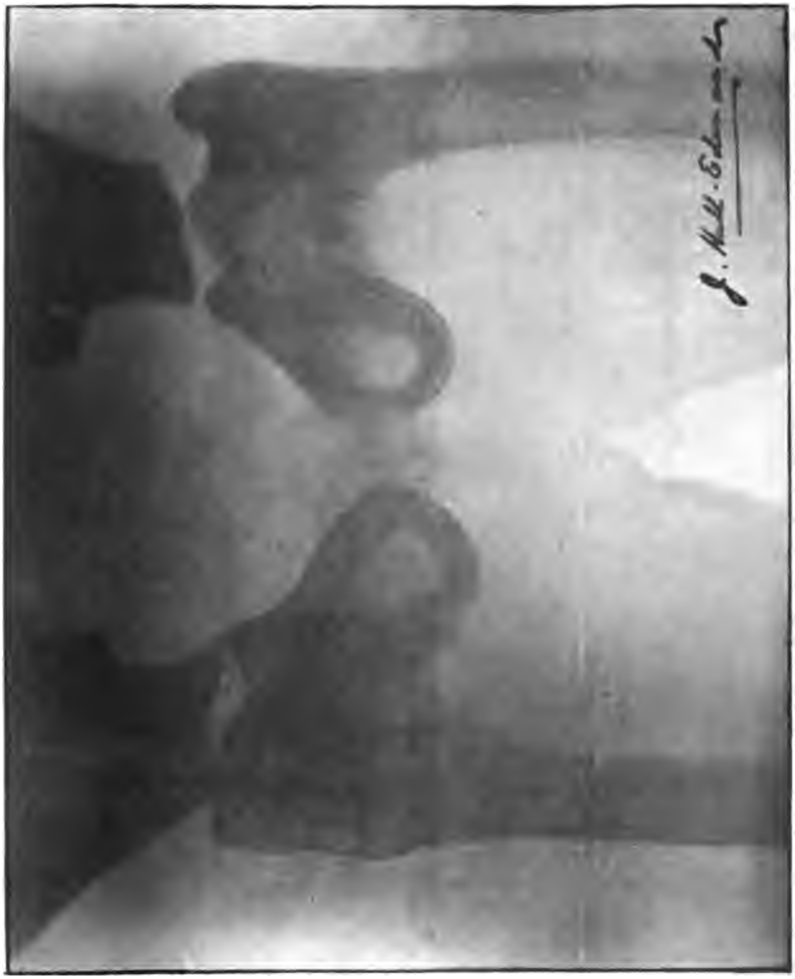
Prognosis.—Rest quickly relieves pain, and with it the further depression of the head of the bone is stayed. In certain cases, where rest and treatment have been neglected, the condition of "scissor leg," and the resulting gait and deformity, make this disease one of great severity, necessitating operative interference.

Treatment.—There are three indications, namely: The general condition upon which depends the softening of the bone, the pain, and the deformity. The pain quickly disappears with rest, and by it the advance of the deformity is checked, the determining factor, namely, the body-weight, being removed. In severe cases, where the deformity is very marked, sub-trochanteric osteotomy of the femur or cuneiform osteotomy of the neck of the bone have been practised to remedy the condition.

It seems to me that the great difficulty in the diagnosis of this condition is between it and early cases of morbus coxæ, although one of my cases when first seen tempted me to think of a dislocation on to the dorsum ilii. The introduction of the Röntgen rays has simplified the diagnosis, and not only is it a necessary adjunct, but it is impossible to absolutely diagnose the condition without it. The uniformly good effect of merely rest in bed under healthy, sanitary conditions, sometimes combined with slight extension, has impressed me with the fact that in very few cases can operative procedure be necessary; although patients are not cured of their deformity, yet they are relieved to such an extent that, to my mind, any of the suggested operations would not be justifiable. My patients have, after a few weeks in bed, been got up and treated very like convalescent cases of hip-joint disease, *i.e.*, with a Thomas's hip splint, crutches, and a high boot; soon to discard even this with the simple application of a cork sole to remedy any shortening. I usually advise avoiding any occupation which may necessitate long standing. Certain Continental authorities have termed coxa vara an "occupation disease" (maladie professionelle); to such an extent has it been found to occur in patients whose occupations involved standing for many hours, together with or without the additional factor of weight-lifting.

The following notes are those of my own four cases, the skiagram of No. 1 is appended.

Case 1. Ivy C., æt. 10, was first seen by me at the Orthopædic Hospital, in September, 1899. She complained of pain of the left hip, which was of twelve months' duration; she limped a little when walking. Shortening three-quarters of an inch. The child was a bright brunette: does not look rachitic, nor are there any signs of early rickets or specific disease; no tubercular history in the family. Her mother says she does not sweat at night, nor does she have any pain or starting. The pain is only present during or immediately after active movements; on passive movement of the hip there is no pain. Abduction is limited, especially in the flexed position of the thigh; the foot is slightly everted when hanging down. Flexion is free, and enarthrodial movements quite painless. No fulness or tenderness about the head or neck of the bone. The great


J. Hall-Edwards

trochanter is somewhat prominent, more especially when the leg is flexed; the top of this process is raised three-quarters of an inch above Nélaton's line. Wasting is only very slightly marked. I took her into the hospital for six weeks, during which time she was kept in bed, a slight extension being applied. She had no rise of temperature. The pain disappeared entirely. Codliver oil and maltine being given. She went out on a Thomas's hip splint, which has since been discarded, and she is now, after fourteen months' treatment, relieved of all pain, and able to run about almost normally with a cork sole to remedy the shortening. The skiagraph of this case, which is now published with the paper, shows definitely that the angle made by the neck of the femur is markedly diminished on the affected side,

Case 2. Annie J., æt. 15½ years, came to the hospital in January, 1900, complaining of pain in the right hip and knee; this had been present on and off for more than two years, but had, owing to a fall, become much worse during the last month. She is a well-developed, muscular girl, who follows the occupation of japanner, standing at her work from morning until night; she limps a little: there is about three-quarters of an inch of shortening. The girth of the affected thigh is 15½ inches, whereas the other is 16 inches, so that the wasting is very slight. The great trochanter is very prominent laterally, and about an inch above Nélaton's line; the limb hangs slightly flexed, adducted, and rotated out; there is slight genu valgum and flat foot on this side. The movements of the limb are painless, abduction is very limited, as also is internal rotation. She has had no shooting pain at night, no evidence of early rickets. The mother says that the knock-knee has come on during the illness; she has also noticed that her daughter limped a little for about two years; she has consulted various medical men, and they have all told her it was growing pains. I took her into the hospital, and put her to bed without any extension, and at the end of six weeks all symptoms had disappeared, and she returned home with a cork sole to correct the shortening. She has been treated by massage once a week, and advised not to return to her occupation for a year or so. The skiagraph shows that the femoral angle is about 45 degrees on the affected side, the other side being normal.

Case 3.—George T—, æt. 17, engaged in the Parcels Post Office, where he had to lift fairly heavy weights and was on his legs all day, came to the hospital complaining of pain in the right hip which he attributed to a fall from his bicycle. He had had pain for some months before this, which he said was not sufficiently bad to consult a doctor about. On examination, I found one and a quarter inches shortening, with marked lateral prominence of the great trochanter, the top of this process being one and a quarter inches above Nélaton's line. Abduction was limited and internal rotation somewhat reduced. Passive movements being limited but painless. There is genu valgum on the same side. The boy otherwise very healthy. I told the mother to keep him in bed for two months, at the end of which time I put him on a Thomas's hip-splint, which he wore for three months. All pain has ceased and he is now getting about quite comfortably without limping; he is wearing a cork sole to remedy the shortening. The skiagraph shows a distinct lowering of the head of the femur, the angle being nearly a right angle.

Case 4.—Edwin G—, first seen in private in February, 1900. A previous diagnosis of this case being dislocation of the hip following hip-joint disease. History: six months previous to my seeing him he had had an attack of fever (? rheumatic); this was followed, when convalescent, by pain in the right hip. He had no starting pain at night; there was no tenderness of the hip; he was alright when in bed, but on attempting to walk and immediately after, the pain was severe. I can feel at the head of the bone, in the acetabulum, there is no tenderness or thickening around the joint; the great trochanter is very prominent and raised an inch and a quarter above Nélaton's line, the limb being that much shorter than its fellow. Flexion is somewhat limited and abduction markedly so; passive movements are painless. He was put to bed for two months and a Thomas's splint applied at the end of that time. When in hospital, the pain all disappeared; his temperature was never above normal. There has been no return of his symptoms, and with a cork sole to remedy the shortening, all limping has disappeared and he walks quite comfortably. The skiagraph here gives a definite diagnosis, there being no indication of disease other than the usual lowering of the head of the femur, which is below the level of the great trochanter.

SOME INDICATIONS FOR VENESECTION. *

BY S. HERBERT PERRY, M.D. (LOND.), M.R.C.P. (LOND.),
BIRMINGHAM.

THE basis of this paper rests upon the experience that I have derived from upwards of forty cases of venesection performed or witnessed by myself, and I propose to speak essentially of the conclusions which I have arrived at from a consideration of the experience afforded by these cases. The question I take for special consideration is that of the indications for venesection. *When* should we bleed?

Our lay friends never tire of telling us that medical opinion is a mere change of fashion, and we can hardly deny that we have to some extent laid ourselves open to this statement in the matter of venesection. For the custom of blood-letting has passed during this century through two stages, those of over use and of no use, and is now passing into the third--and, I hope, last stage, that of rational and moderate use.

Yet the question of the therapeutic value of venesection receives but scant notice at the hands of writers of text-books on medicine and therapeutics. It is one of the "debatable grounds" of medicine, and, for the most part, it appears to be thought best that the medical student should leave the matter alone. I cannot agree with this attitude, since I hold that venesection properly used is a most valuable therapeutic agent. I have, in my own mind, almost a fear that in these days of scientific medicine there is a tendency to neglect the most obvious field that lies before us, that of clinical experience. Pathological and physiological theories rise and fade before us with a bewildering rapidity; resembling a show of fireworks. Clinical research is more concrete, and deals with facts rather than theories; and, we must remember that however skilled a man may be in the laboratory, it is by his clinical knowledge that he must stand or fall in actual practice.

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* Being a paper recently read before the Queen's College Medical Society.

A word upon the method of venesection. The older surgeons appear to have advised the opening of a vein by one incision. This method has, to my mind, certain disadvantages. In making one direct incision into the vein one of two things may happen: the vein may be completely divided or may be imperfectly incised, and in the latter case thrombosis will rapidly occur at the incised point and another vein may need to be opened. This I have seen to happen on several occasions, in inexperienced hands. My method is as follows. Make an oblique skin incision over the chosen vein, and then—turning the back of the scalpel to the vein—transfix it, thus making sure that it is semi-divided. A moderately tight turn of bandage has usually been previously placed centrally, and the skin cleaned.

This method is certainly an improvement on what I may call the scratching method of opening a vein. Our professional forefathers, also, sometimes wounded the brachial artery or caused a later arterio-venous aneurism by their bolder methods. Cocain may be used to produce local anæsthesia, but is not usually advisable in the conditions which demand venesection.

There is a certain practical difficulty in advising a blood-letting. The patient, in private practice, is apt to regard the matter as an affair of much gravity, and his death will assuredly be laid at our door if it follow on closely. With the exit of the frequent blood-letting of years gone by, there has come a general shrinking at the sight of blood. Truly, indeed, one may say with one of the greatest of our romance writers, that our forefathers "took a braver heart to battle than we take—to the dentist."

I now proceed to the basis of my paper. I shall deal only with such indications as I have deduced from my own series of cases, and shall consider such indications under the heading of the diseases in which they occurred.

These diseases are as follows:—

(1) Acute Pneumonia;
(2) Cardiac Disease;
(3) Acute and Chronic Nephritis;
(4) Cerebral Hæmorrhage;
(5) Heat-stroke.

It is to be clearly understood that the above list is not put forward as a summary of the diseases in which venesection is of value, but is merely a list of those diseases in which I have seen it used with advantage or otherwise.

VENESECTION IN ACUTE PNEUMONIA.

I deal firstly with this disease because most of my venesections were performed in the course of it, and because I look upon pneumonia as essentially a disease in which life may be saved and distress much relieved by a timely blood-letting. Acute pneumonia is one of the few diseases in which venesection may be used as a curative agent—that is, as an agent that may directly aid in the restoration of normal health to a patient,—and not merely as a palliative, as in chronic cardiac disease.

Looking through my series of cases, I find three types of acute pneumonia in which I consider that venesection was used with advantage to the patient.

(1) In the early stages of cardiac failure.
(2) In pneumonia, complicated by considerable acute bronchitis.
(3) In plethoric pneumonia.

With these three types I will deal very briefly in turn; taking first the cardiac failure type, as being the most important and including the larger number of cases.

(1) In the early stages of cardiac failure.

We may take the following as a sufficient group of signs of cardiac failure in pneumonia :—

(*a*) Signs of dilatation of the right ventricle.

(*b*) Increasing dyspnœa.

(*c*) Commencing œdema at the bases of the lungs.

(*d*) A secondary decrease in the loudness of the second sound in the pulmonary area.

(*e*) Certain alterations in the blood-pressure.

The above signs would of themselves form material enough for more than one paper; they cannot be here dealt with to any extent.

I feel that I do not need to speak of right ventricle dilatation to those who have followed Dr. Foxwell's teaching.

The increasing dyspnœa, mentioned above, has this point about it, that it becomes distressing to the patient, whereas I do not think that there is usually subjective distress in the respiration of a favourable pneumonia case.

To sign (*d*) I am inclined to attach some importance. A secondary decrease of the pulmonary second sound is, I believe, one of the earliest and most important of the signs of right ventricle failure. In the earlier and favourable stages of an acute pneumonia, the pulmonary second sound is typically accentuated, sharp and clear. Later on, a careful observer may note that the sound becomes dull and muffled relatively to its former tone. This change of tone may be associated with commencing resolution, with a decrease of dyspnœa and a general improvement. But, in my experience, the change of tone is most marked when it occurs with increasing dyspnœa, growing lividity of the skin, and commencing pulmonary œdema.

In the improving case, the alteration in tone coincides with the lowering of the blood-pressure in the pulmonary area; in the graver case, the muffled tone of the second sound points to failure of the heart muscle and dilatation of the right ventricle.

In several typical cases of cardiac failure in pneumonia I have observed this alteration in the tone of the pulmonary second sound to be one of the earliest—if not actually the earliest—of the signs of cardiac failure. If we allow the right ventricle to dilate to a marked extent we have reached a most dangerous period. Venesection, to be of real service, must be performed while the heart has yet a good potential vitality; it will be only a palliative agent if grave cardiac failure has occurred, more especially so if the failure occur early in the disease.

With regard to changes in blood-pressure (*e*); I take the typically favourable pulse of acute pneumonia to be a full and fairly soft one. Broadbent states (The Pulse, p. 193) that "Pneumonia has a frequent, large, vehement pulse, with well-marked dicrotism." I should agree as to the dicrotism, but not as to the necessary vehemence of this pulse.

In an unfavourable pneumonia we may get some variety of pulse; I may mention two well-recognised forms. A failing heart may coincide with a high blood presure, where the high blood-pressure is probably a chief factor in the failure; or, where the heart muscle has weakened primarily from other cause, as excessive toxæmia or high temperature, the pulse may be small and feeble. This feeble pulse may also be secondary to the evil effects produced by a high-pressure pulse.

The pneumonia pulse is admirably described by Broadbent (*loc. cit.*): "The obstruction to the pulmonary circulation, either from the extent of lung implicated, or more frequently from attendant engorgement of parts of the lung not distinctly implicated in the inflammatory process, is such as to embarrass the right ventricle. It is unable to propel the blood through the lungs as fast as it arrives by the venæ cavæ, and there result distension of the right auricle and veins and dilatation of the ventricle. . . . . Under these conditions the amount of blood reaching the left side of the heart is inadequate, the ventricle is imperfectly filled during the diastole. . . . . . We have, then, instead of the large, vehement pulse, a small artery and weak beat, and this while the action of the heart is found on examination to be unusually forcible. . . . . The face is pale, haggard, and often livid. It is in these circumstances that venesection is of such remarkable service."

The effect of a free venesection on the different types of pulse above mentioned will be obviously different. The high blood-pressure pulse is lowered and softened, whereas the small and feeble pulse gains tone and becomes more full as the blood-letting relieves a heart and venous system distended and choked with blood.

(2) In pneumonia with acute bronchitis.

I have seen very excellent results to follow the practice of venesection in cases of pneumonia early complicated with much bronchitis; the profuse bronchitic expectoration being much relieved. All that has been said with regard to cardiac failure, applies to this type also. I am inclined to think, however, that in this class of case we should bleed early in the disease, in order to relieve the bronchitis, and that we need not wait for signs of cardiac failure, since if these do appear they are necessarily of greater gravity than in an uncomplicated pneumonia.

I owe to Dr. Simon the statement that it was he who first directed my attention to the value of bleeding in cases of pneumonia where acute bronchitis was a complication.

I need hardly point out that venesection must almost always be quite inadvisable in old or debilitated people.

(3) In plethoric pneumonia.

By the term plethoric pneumonia, I refer to a type of case familiar to all. The patient is a stout and, to the lay mind, a robust man, with high blood-pressure, and is generally in much pain and distress. He is typically the subject of full feeding and of over full drinking. He is a bad subject for pneumonia, and is, I believe, helped by a free venesection early in the disease; say to ℥ xvi or xx. I am aware that the treatment may here be termed empirical, and a reversion to the ways of our forefathers. Yet it is better to relieve our patient as an Empiric, than to fail as a Rationalist.

Doubtless, in other types of pneumonia, venesection may be indicated; I have desired only to draw attention to the forms which I have had an opportunity of observing.

VENESECTION IN CARDIAC DISEASE.

In this matter my experiences are limited to chronic morbus cordis, and, speaking generally, I may say at once that I have not a good opinion of the use of venesection in this condition. When the cardiac muscle is degenerated or diseased, venesection can only be of value as a temporary remedy. The true value of venesection is here absent. I refer to the tiding of an organically healthy heart over an acute emergency, for in such a case lies the real value of blood-letting.

We have all seen a venesection to probably save life—for the time being—where a sudden emergency—such as an unusual strain—has caused failure of degenerate heart muscle; but this blood-letting can do no permanent good—as I believe. It might, however, and often would, relieve us from the gravity of a sudden and distressing death. The case I have in mind is within the knowledge of all. A patient having chronic cardiac disease is brought to us purple with cyanosis; the superficial veins standing out; the respiration much distressed. The exhibition of one of the nitrites will often afford relief to such a case, but not so effectively as a blood-letting, for reasons which are—in my opinion—obvious and mechanical. The nitrites, by dilating arteries and arterioles, relieve a part only of the peripheral obstruction; they only relieve indirectly the venous system, and still more indirectly the capillary system. In these cases of heart failure we commonly find a choked venous and capillary system, a dilating heart unable to contract, and the peripheral arteries of small volume and ill-filled. By a timely venesection we lessen the actual amount of blood flowing to the heart, and directly diminish the blood pressure in the local capillary area affected. The heart has, therefore, less blood to deal with and a clearer path through which to drive it. In this manner, an opportunity is afforded to the heart of recovering from temporary strain and of resuming its function. When we consider that the heart is an organ which has no rest save its own diastole, we may in some way understand how great may be the relief afforded by the abstraction of some ℥ xx of the blood in circulation.

Moreover, to pass from the above digression, I suggest that there is in chronic cardiac disease a certain danger of producing or hastening the occurrence of thrombosis by the use of venesection. I have notes of two cases in which thrombosis followed on venesection, at some interval.

Case 1. Male, aged 59 years, suffering from chronic bronchitis and a right ventricle much hypertrophied and dilated. On admission, he presented great cyanosis and dyspnœa and a pulse small and compressible. Great relief was given by the taking of blood (℥ xx) from the arm. He improved during the following weeks. Six weeks after admission, after a movement implying much greater exertion than usual, the patient fell back in bed with general convulsions and a sudden and complete loss of consciousness. The heart was now acting strongly, the blood-pressure was high and the arteries were markedly degenerated. Thinking that a cerebral hæmorrhage was occurring, I bled the patient again at once to ℥ xvi. No relief followed, and the patient died five hours after the onset. The *post-mortem* showed a thrombosis of the basilar artery.

Truly, we may learn from our mistakes. The *post mortem* examination showed plainly that the treatment was wrong, and, possibly, hastened the end. I do not suppose, however, that a fatal termination could in any case have been avoided.

Case 2. Male, aged 22 years, suffering from chronic mitral disease. On admission, he showed cyanosis, dyspnœa and great abdominal pain. The pulse was small, rapid and irregular. Venesection was performed to ℥ xiv, with marked relief to the patient.

He improved for three or four days, and then developed some consolidation at the base of the right lung. A few days later, he was seized with increasing dyspnœa and vertigo. On the following day complete right hemiplegia and aphasia were observed, and death followed on shortly.

The *post-mortem* examination showed thrombosis of the basilar artery, as in Case 1.

In addition to the interest that lies in the fact that they were both cases of thrombosis of the basilar artery, these cases indicate, I think, that there may well be a danger in using venesection in cases in which the heart and vessels are too far gone in disease to be able to accommodate themselves to the changes in the circulation brought about by the abstraction of blood.

In a case, for instance, of profuse hæmoptysis, we may advise venesection, in order to produce thrombosis at the point of lesion. In a case of chronic cardiac disease, in which the blood is dammed backwards into the venous system, we shall usually tend to fill the systemic arteries by using venesection; but, if the heart be too far degenerated and dilated to react to such treatment, venesection may possibly tend to increase the chances of the occurrence of a peripheral thrombosis.

In Case 2, above quoted, the onset of the paralysis was typical enough of thrombosis; but, in Case 1, the sudden onset, rapidly complete coma, and previous exertion led me to diagnose a sudden hæmorrhage.

I have notes of another case in which venesection gave great temporary relief, but was of no permanent value. The case was one of general arterio-sclerosis with a much dilated heart, consecutive to lead poisoning and chronic nephritis. Venesection was here tried for the relief of most distressing cardiac dyspnœa, and succeeded so well that it was used on three occasions. Such treatment, however, could have no real curative value, and I should not be prepared to repeat it in a similar case, since the state of the heart and arteries necessarily led to a rapid recurrence of the patient's distress.

VENESECTION IN CEREBRAL HÆMORRHAGE.

There are, I think, certainly, three types of cerebral hæmorrhage in which blood-letting might be advisable.

(1) Ingravescent hæmorrhage.

(2) A sudden serious hæmorrhage.

(3) Threatening recurrent hæmorrhage.

I have no experience of venesection for ingravescent hæmorrhage, but I should certainly be inclined to advise it should opportunity offer.

I have small doubt that venesection might, in otherwise suitable cases, be most valuable at the onset of a sudden cerebral hæmorrhage, but, unfortunately, the opportunity of performing it can hardly ever occur. Case 1 (above quoted) might have been such a case, but unhappily my diagnosis was incorrect.

I have had the opportunity—in private practice—of using venesection in the third type of cerebral hæmorrhage mentioned, that in which recurrent hæmorrhage threatens. This patient, who was recovering from a primary hæmorrhage three months' distant, I bled twice for the prevention of recurrence, on the appearance of such symptoms as vertigo, headache, paræsthesiæ and high blood-pressure. I believe that this treatment was of value in prolonging life, but it could not, in the face of highly degenerated arteries, prevent an ultimate free hæmorrhage, which caused sudden death.

VENESECTION IN NEPHRITIS.

The cases of venesection in nephritis which have come under my notice come under the following heads:—

(1) Simple acute nephritis, with high blood-pressure and signs of uræmia, occurring in young people;

(2) Uræmic convulsions due to chronic nephritis;

(3) Chronic uræmia with high blood-pressure, due to chronic nephritis.

In the first type quoted, the blood-letting was advised in order to relieve two conditions, the high blood-pressure and the toxæmia induced by the disease (that is, assuming that the symptoms of so-called uræmia are due to poisonous material circulating in the blood). In this case the immediate result and the ultimate result were alike excellent, and I shall incline to a repetition of the treatment with the advent of a suitable case.

I have only seen the above case of this type, and I cannot speak as to whether the bleeding gained its good result by relieving the blood-pressure or the toxæmia, or both. The mere relief of a fairly high blood-pressure does not seem to account for the great relief of the other dangerous symptoms in such a case. Does venesection relieve an acute septicæmia or sapræmia, without a high blood-pressure, for instance? I have no experience on this point. I note with satisfaction that Sir William Broadbent has a high opinion of venesection for nephritis. He writes: "I have employed it in all forms of renal disease. In acute albuminuria, not only are the immediate effects good as regards the convulsions, but sometimes the kidney affection is at once relieved, and recovery takes place with extraordinary rapidity." Is this effect due only to the relief of blood-pressure?

I have only one case of uræmic convulsions to chronicle, and in this case venesection (℥ xx) was absolutely of no avail. I note, with some interest, that in this case the blood-pressure was not high, for I am inclined to attribute practically the whole value of blood-letting to its influence on blood-pressure, rather than to any possible abstraction of materies morbi.

Of chronic uræmia, with high blood-pressure, I have three cases. In each of these, venesection gave an immediately good result, followed by a rapid relapse in a few hours. As I stated above, venesection cannot be expected to give any permanent results in cases where the heart and vessels are seriously degenerated: the circulatory system *must* retain the power of recovery if it would benefit by the short rest—and the chance of regaining its equilibrium—conferred by venesection.

VENESECTION IN HEAT STROKE.

One case only, in which venesection was used, has come under my notice. The case was one of true insolation, occurring on a steamship in the Indian Ocean, not a case of mere heat exhaustion such as we may see fairly often in this country in the summer. The onset occurred while the man—a stoker—was asleep in his berth during a very hot night. When found he was comatose; temperature in the rectum 107°; the skin pale and dry; the pupils widely dilated, and the pulse small and feeble. Cold water and ice were freely applied to the head and body. Brandy—℥ ss—was given by the rectum, and Liq. Strych. ♏ v. sub cute. By the use of ice-water the temperature was reduced in half an hour to 104·5°, but the patient still remained comatose. His condition was now one of extreme cardiac failure; the pulse being irregular, small and feeble; the superficial veins of the head and neck were full, and the face livid. It seemed probable that the heart was in a state of paralytic distention, and the venous system choked. He was then bled from the arm to about ℥ xx. Even while the blood was flowing the good result was to be seen, the skin rapidly losing its lividity, and the pulse growing fuller and stronger. Evidently the relief afforded by the venesection has been sufficient to allow of the readjustment of the cardiac function. The temperature was now 105°. The man eventually made a good recovery with the aid of ice-water douches and full doses of quinine.

I do not mean to imply that blood-letting is a valuable treatment for insolation. The above case might apply to cardiac failure following hyperpyrexia from any cause. I have quoted this case as the most typical instance of a life saved by venesection that is within my knowledge, for this man was moribund prior to the venesection.

This practically concludes the practice of venesection that lies within my experience. There are—I do not doubt—many other indications for its use, but I will not speak now of that I have not seen.

Dr. Foxwell, I note, writing on the treatment of hæmoptysis, states that: "If the pulse be strong, the individual full-blooded, or if venous congestion exists, then it is easy to see how a timely venesection may diminish the loss of blood. For half a pint of blood withdrawn quickly will lower tension as much as a pint removed slowly." With this I feel entirely in accord, but I have not yet found a case of hæmoptysis suitable for venesection. Hæmoptysis yields almost always to morphia, rest, and purgation. Those sudden and profuse hæmoptyses, so often due to small pulmonary aneurisms, are apt to bring death before aid can be given.

The late Professor Hughes Bennett, of Edinburgh, one of the strongest opponents of the irrational use of venesection, advised the use of small blood-lettings to mitigate the pain and distress of the last stages of aneurism. The advice seems reasonable, and coming from such an authority must be worthy of trial. I have myself no experience of it.

Throughout this paper I have used the term blood-pressure preferably to arterial or venous tension, for the reason that the former term conveys a more definite meaning than the latter. When we speak of arterial tension, do we not really refer to the pressure under which the blood is contained in the artery? I do not speak of the actual tension of the blood, since I am not enough of a mathematician to follow so abstruse a question as that of fluid tension. If the term arterial tension refer to the strain upon the vessel wall, it may well involve us in contradiction. For if the arterial wall be muscular, elastic, and healthy, the blood-pressure within the artery may be very high (as in acute nephritis), while the tension of the arterial coat remains low; and, conversely, if the arterial wall be diseased, a comparatively low blood-pressure may well raise the tension of the vessel wall to breaking strain. For these reasons I prefer to avoid the term arterial tension, and to use the term blood-pressure, as having a more definite meaning.

I have endeavoured, in this paper, to show that clinical research affords many interesting lines of study to those of us who, being engaged in general practice, have neither laboratory nor hospital to interest us. There must be many more indications for venesection than those I have dealt with here. I have merely taken for consideration certain cases which may be looked upon as types. In the case of any therapeutic agent it is absolutely necessary that we should formulate within our mind the typical occasions for the use of it; we need not—

and should not—hold only to type cases, but should vary our formulæ to meet the needs of individual disease.

I cannot conclude without thanking the Medical Staff of the General Hospital for affording me many opportunities when I was acting as House Physician, for much valuable teaching, and for the use of their case-books for the purposes of this paper.

ON THE RISKS OF ETHYL CHLORIDE NARCOSIS.

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(*Münchener Medic. Wochenschr.*, No. 18, 1900.)

TRANSLATION.

I HAVE already[1] pointed out that, as there is no narcotic which is without danger, so Ethyl Chloride may entail a certain amount of risk. As up to that time we had not observed any sort of accident, I mentioned the fact that Soulier and Kocher had each acknowledged a fatality. In the latter's case no details at all came to light, but Soulier's was cleared up in surprising fashion, for the whole series of experiments in the Lyons hospitals did not apply to ethyl, but to ethylidene chloride. Through this mistake in the report[2] I was induced to make experiments as to the usefulness of ethyl chloride in surgical practice[3].

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[1] Arch. f. Klin. Chir., Bd. 57 and Verhandlungen der Deutsch. Gesellsch. für Chirurgie, April, 1898.

[2] Münch. Medic. Woch. No. 27, 1896. Early in August, 1896, I carried out the first narcosis under ethyl chloride. As I only learned, much later on, Dr. Henning corrected the mistake in No. 36 of this journal for Sept. 8, 1896. I, notwithstanding, still thought in April, 1898, that Soulier had used ethyl chloride, because Soulier in correspondence with Dr. Ludwig, who reported our earlier narcoses, did not rectify the error.

[3] Seitz (Deutsch. Zahnärztl. Wochenschr. No. 68, 1899) has established the fact that already Heyfelder, in 1848, had carried out three narcoses with "Salzäther." The matter, however, had been forgotten.

The results were so favourable, that my honoured chief, Professsor von Hacker, allowed the greatest possible facilities for ethyl chloride narcosis in his clinic. Larger and more difficult operations were undertaken under it. Gastrostomies, colostomies, radical operations for hernia, breast amputations, amputations of the extremities, resection of the ribs, osteoclasia, rectification of joints, with and without tenotomy, were easily performed; dislocations and fractures could readily be reduced. Rectal operations, such as those for fistula, fissure, or hæmorrhoids (including cauterisation with the thermo cautery), which formerly necessitated deep chloroform anæsthesia, were accomplished without mishap under kelene (the proprietary name for ethyl chloride). Smaller operations were naturally carried out in large numbers. Altogether we have had so far 850 narcoses, of which records have been kept.

The narcotic action of ethyl chloride had already for some time been known to dentists, as when used locally its vapour was inhaled, and thus involuntarily general anæsthesia was induced (Carlson-Gothenburg[4]). Then Thiesing intentionally carried out some narcoses.[5] Slowly the method spread abroad, and proved to be very suitable for dental work, as is shown by an important series of publications.[6]

The early experiences in the human subject naturally suggest the exact determination of the method of action by experiments on animals. The first experiments on animals[7] originated with Wood and Cerna (Pennsylvania),[8] and went to show that marked lessening of the pulse rate and lowering of the arterial blood-pressure were caused by ethyl chloride. Later experiments did not altogether accord with these, and observations in man showed that there can be no question of a lowering of the blood-pressure, but that the pulse actually becomes fuller. Schleich's experiments[9] were, as compared with a narcosis, carried out in too abnormal a fashion. If a rabbit or guinea pig be placed under a glass jar which has no valves, and is then exposed to the influence of a narcotic, the experiment is not a pure one, since the animal has to rebreathe its own expired gases as well as the narcotic, which may have become changed by the action of respiration. If we are to deny the utility of a narcotic on the deductions from animal experiments, as Schleich does, these experiments must be free from objection. Even then, they are not absolutely proofs, for we know in regard to the narcotics which have been long ago adopted, that the human subject tolerates them relatively well, although this is not true in the case of many animals.

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[4] Correspondenzbl. f. Zahnärzte, Anfang, 1895.

[5] Deutsch. Monatsschr. f. Zahnheilkunde, April, 1896.

[6] Billeter: Schweizerische Vierteljahresschr. f. Zahnheilkunde, 1897; Brodtbeck, Respinger, Ruegg, ibid., 1898. Seitz: Deutsch. Monatsschr. f. Zahnheilk., Jan. 1899; Schw. Vierteljahresschr. f, Zahnheilk., 1899, part 1: Odontologische Blätter, 1899; Zahnärztl. Rundsch., 8 Oct., 1899; Deutsch, Zahnärztl. Wochenschr., Nos. 68 and 84, 1899. Gires: Revue de Stomatologie, Jan. 1900.

[7] If we disregard experiments by Flourens, v. Bibra, and Harless, who in their day established the fact that ethyl chloride (salzäther), just like sulphuric ether, caused loss of consciousness and sensibility in animals

[8] Dental Cosmos, July, 1892, quoted by Seitz.

Ruegg undertook some experiments on rabbits. In these, the ethyl chloride was led through a cannula directly into the trachea. If the drug was then inhaled without admixture of air, *i.e*, as concentrated vapour, spasmodic breathing occurred; at the same time, the mean blood-pressure was considerably increased, and then again gradually fell if the action of the concentrated vapour ceased. An animal was killed by a narcosis of 39 minutes in which concentrated vapour was administered at the end. Another was narcotised for 25 minutes without harm, although it showed clear signs of vagus stimulation, for its heart beats were less frequent but more vigorous. With concentrated vapour, muscular spasm occurred. From his experiments on animals, which he designated "preliminary investigations," Ruegg comes to the following conclusions:—

1. If after the occurrence of muscular spasm and widening of the pupil (threatening forerunners of medullary paralysis), the

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[9] Schmerzlose Operationen, 2nd edition, Berlin, 1897.

inhalation be at once stopped, the animal always promptly awakes and comes round.

2. The blood-pressure curve taken during the inhalation of diluted vapour, indicates vascular widening, while that taken during in-breathing of concentrated vapour, indicates increased heart action or vascular narrowing.

3. Opisthotonos is sometimes observed.

In animals, a superficial narcosis can be sustained for some time without harm, by using a sufficiently diluted vapour; concentrated vapour kills by asphyxia within a short time.

Lastly, Ruegg has shown that there is in the early stages, widening, and later on, narrowing of the blood vessels of the brain.

With these conclusions, practical experience is in full agreement. We find recorded in the literature of ethyl chloride narcosis, a series of observations which correspond with them. Three cases of opisthotonos, one seen by Seitz, and two by Respinger, show that spasm may happen in the human subject. All these cases were alcoholic subjects, but I do not think that in them a predisposition was caused by the use of alcohol. It appears to me to be more probable, that these people had inhaled very concentrated vapour, as according to our experience, alcoholics need somewhat more of this narcotic. We could not observe that "in alcoholics the drug generally appears to be tolerably indifferent," as Seitz and Billeter suppose; and alcoholics need operation fairly frequently. However, as in the case of other narcoses (chloroform, ether, etc.), we prefer to give beforehand to heavy drinkers morphine or heroin subcutaneously.

Seitz has reported a few cases of asphyxia, which, on stricter examination, may not all be ascribed to the ethyl chloride.

In one case ether narcosis was tried, and, as after 35 c.c. had been used in a quarter of an hour without anæsthesia resulting, ethyl chloride was poured on. "After an inhalation of half a minute, and 3 c.c. of ethyl chloride had been used, asphyxia occurred," which was relieved in two minutes by artificial respiration. In this case cumulative action may be supposed. We have often had opportunity of observing that this action does not take place, in a series of cases showing the contrary. Very good narcosis can be induced with ethyl chloride, and then it can be continued with another narcotic. At first this was only done if it was recognised during operation that the narcosis would probably last too long, or, as happened to me, in the case of a very difficult operation for the radical cure of hernia, when there was no more ethyl chloride. Three tubes, the whole supply, were used, and the operation had not yet been finished (the entire omentum had to be removed). As I had only ether with me, I had it poured on. The patient did not awake, but the one narcosis passed over into the other. No particular after-effects showed themselves. Later on we often used this combination or kelene before chloroform in clinical work, in order to more quickly narcotise the patients with kelene, and thus save time.

In the second case, that of a strumous patient, Seitz observed asphyxia after 3 g. of ethyl chloride, and another instance also occurred "after awakening from a narcosis lasting fifteen minutes, in which 6 g. of ethyl chloride had been used," but was soon relieved by induction of artificial respiration. The pulse, notwithstanding, continued full and strong, there was no change of colour, while the corneal reflex was absent, and the pupils did not change. Seitz explains the case as due to the anæmia of the patient, and to the presence of struma.

In the case of a weakly anæmic man, who since his 14th year had fainted at any excitement, Seitz, after an otherwise uneventful narcosis, observed syncope, which was not relieved by artificial respiration and massage of the heart, but necessitated complete inversion and subsequent artificial respiration. If it be considered that this weak man had been marched for 1½ hours up a high mountain, and was narcotised while in a state of complete exhaustion, as he did not venture to say that he was ill, we may certainly exclude the assumption that in this case the nature of the narcotic caused this painful occurrence.

" The fact that, in spite of fully three minutes' stoppage of the heart's action, the patient was brought round, is altogether in favour of ethyl chloride, for, with any other narcotic more lasting in its action, resuscitation, under these circumstances, would have been in the highest degree improbable."

Two cases of asphyxia were also observed in the dental clinics of Drs. Respinger and Ruegg, in Basle. Seitz has rightly emphasised the fact that in these cases there was too great concentration of the vapour. Only as a result of this did cyanosis and noteworthy excitation occur. This excitement is the same as the stage of irritation already observed in animals, which may pass over into death. Unfortunately we have had an opportunity of convincing ourselves of the correctness of this observation.

"The case was one of a day labourer, aged 41, who for several years had suffered from an extensive ulcer of the leg, which had withstood the most varied treatment, and now was so painful as to render work impossible for the patient. After the sanious ulcer had been cleansed by poultices of acetate of alumina and elastic coverings of the limb, a skinflap transplantation was to have been undertaken on October 23, 1899. The edges of the skin were first freshened, and the floor of the ulcer excised. The kelene narcosis had lasted three minutes, when the blood became markedly dark. The patient, who was a very strongly-built man, and a heavy drinker, had a minute before shown violent excitation, and therefore kelene had been newly sprinkled on the mask. But when facial cyanosis occurred the inhaler was removed. Corneal and pupillary reflexes were absent.

When the blood became dark the patient made violent repelling movements with his limbs, and the jaw muscles became spasmodically tense. In consequence of the spasmodic muscular contraction, which was tonic in character, the patient only breathed by starts, his face was cyanotic, and his pulse was still distinctly palpable, although not countable on account of the muscular tension. All at once it stopped, quite instantaneously, when artificial respiration by Silvester's method was about to be begun. This was now kept up for more than an hour, while simultaneously subcutaneous injections of camphorated oil were given, and massage of the heart and galvanisation of the phrenic nerves were used. Nothing availed.

"The symptoms described followed the one on the other with almost lightning-like rapidity. The time from the beginning of the narcosis to the fatal event hardly amounted to more than three minutes. About 10 g. of kelene had been used from a tube having a wide outlet. At its point was found a thick frozen layer of the drug, and one would say that at the most 5 g. had been inspired. At the necropsy was found eccentric hypertrophy of the heart, with fatty degeration of its muscle, marked sclerosis in the coronary arteries, and in less degree the same in the aorta. In the heart and large veins there was bright cherry red and fluid blood, but no clots. The colour of the blood reminded one of that in carbonic acid poisoning. There were no ecchymoses on the pleura or pericardium: the lungs were œdematous."

The absence of ecchymoses is noteworthy, as consequently it might not have been a case of death from suffocation, though otherwise, there was at first rather the impression of asphyxia. Certainly, in the case of powerful men, ecchymoses are absent, though not if there be atheroma of the vessels. There is a much more probable explanation in the light of researches undertaken by Mac William and Leonard Hill[10] on chloroform syncope. According to them, paralysis of the centres depends not only on the quantity of chloroform, but also on the purely hydrostatic arterial tension as influenced by changes of position. According to Hill, the case would work out thus: Too concentrated vapour acting on the sensitive fibres of the vagus, causes closure of the glottis, and thus increase of intra-thoracic pressure, so that the circulation through the coronary arteries is rendered more difficult. If now the coronary arteries are abnormally narrowed by arterio sclerosis, the heart is insufficiently nourished and its centres become paralysed.

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[10] *Brit. Med. J.*, April 17, July 31, and Nov 30, 1897.

With chloroform there quickly occurs dilatation and incomplete emptying of the heart, though this is absent with ether, and has not been proved true of ethyl chloride. Hill recommends in case of chloroform syncope after struggling, to immediately set the patient upright in order to quickly empty the dilated heart.

In our case, we did not fully invert the patient, nevertheless, we lowered the head, as can be quickly done with Stelzner's table, though without success. I believe that in this case, simply arterio-sclerosis of the coronary arteries, and not dilation of the heart, was the chief cause of the fatal catastrophe. I must here emphasise the fact, that this fatality was only accidentally associated with ethyl chloride. The patient was intended for chloroform narcosis, and only at the last moment and in order to gain time, was the more quickly acting kelene chosen. If things had not happened so, we might, perhaps, have not yet had to record a fatality during ethyl chloride narcosis, but, may be, one under chloroform.

How does this fatality affect the statistics? By the help of short communications, particularly those of Seitz, a dental surgeon in Constance, it has been established, that up to the present time about 2.550 narcoses have been undertaken with ethyl chloride.[11]

On looking through Gurlt's last (1897) statistics of anæsthetics, it will be found that pental, which in its speedy action most resembles ethyl chloride, shows a mortality of 1 in 213. Bromethyl, indeed, gives 1 in 5,396, although at first it stood at 1 in 2,433. It has the disadvantage, that generally very violent excitation occurs and that narcosis cannot be prolonged ad libitum. Further, the smell of bromethyl clings for a long time to the patient and is usually very unpleasant. Ethyl chloride would at present stand statistically after pure chloroform, which shows 1 fatality in 2,075 narcoses.

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[11] Chirurgische Klinik, Innsbruck, 850; Zahnarzt Brodtbeck, Frauenfeld, 550; Zahnarzt Seitz, Constanz, 190; Zahnarzt Dr. Respinger, Basel, 185; Prof. Dr. Billeter, Zürich, 150; Zahnarzt Dr. Ruegg, Basel, 125; Zahnarzt Hotz, Zürich, 60; Zahnarzt Gires, Paris, 50; Zahnarzt Dietrich, Heidelberg, 40; Zahnarzt Dr. Kupfer, Bamberg, 25; Zahnarzt Dr. Kastner, Innsbruck, 21.

In addition, there are about 300 administrations carried out in the dermatological and gynæcological clinics in Prague; and by Dr. Pircher, Zell am See; Dr. Plattner, Kufstein, Dr. Thiesing, Berlin; Zahnarzt Goll, Zürich; and some others.

I expressly said "at present," for an anæsthetic which has only been used for a few years can hardly be compared with one which has been employed for several decades. In the early times the deaths under chloroform were certainly far more numerous, as the technique had not yet been fully mastered, all the dangers which may threaten in chloroform narcosis were not known from experience, and therefore they could not always be avoided.

This, then, is the present position of ethyl chloride narcosis. If, however, its statistics of mortality even to-day approximate those of chloroform, I think that the fact means that ethyl chloride is less dangerous, and that there is no reason at present for abandoning it or for not testing it. I do not think that its progress will be hindered, for decidedly it has its advantages, as to which anyone can easily be convinced for himself.

We have already had repeated opportunities of bringing operations under ethyl chloride to the notice of colleagues who visited our clinic, and all were amazed at the rapid induction and faultless course of the narcosis, and the quick awakening from it. A number of practitioners, and particularly those who received their surgical training at this clinic, have adopted kelene narcosis, and are very pleased with it. It speaks well, in any case, for the applicability of ethyl chloride that a series of narcoses under it have already been carried out at Professor Pick's dermatological clinic in Prague. Matthes[12] has reported on some cases from Professor Rosthorn's clinic, and is of opinion that ethyl chloride "can now be recommended for minor gynæcological operations," and especially for scraping and burning out with the thermo-cautery most inoperable cancers of the cervix uteri.

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[12] Prager Med. Wochenshr., 1899, No. 17.

Seitz[13] has tried the narcosis in a labour case, and, as was to be expected, had a good result, and the more so, as in these cases anæsthesia can be so carried out that muscular relaxation does not occur. In fact, the labour took place very quickly and easily. As already mentioned, the number of ethyl chloride narcoses already known to me from various short communications, amount to about 2,550, in which number are not reckoned those of which no record exists.[14]

Granted, that in regard to the possibility of a fatality, statistics assign to ethyl chloride a place between chloroform and ether, I wish, nevertheles, to emphasise the fact, that we have never observed any specific injurious action of the drug, even after the longer lasting narcoses; that in particular, the kidneys are never affected ; that we have had even lengthy administrations in cases of heart and lung diseases without any indication of injurious influence from the narcosis, as would certainly in the latter case not be wanting under ether, whose statistics are much less favourable, if the fatalities which are caused by ether pneumonia be added to them.

More recently, we have preferred to combine the subcutaneous injection of the muriate of heroin with kelene narcosis, if we are dealing with persons accustomed to the use of alcohol, and if complete muscular relaxation is needed for the operation throughout the narcosis,—*e.g.*, in Bassini's radical operation for inguinal hernia.

In a hernial patient with myocarditis, and in whose case a diagnosis of cæcal hernia with adhesion of the whole of the omentum had already been diagnosed before operation, I gave in the morning 20 drops of tinct. strophanthi, and one quarter hour before the commencement of operation ·01 of muriate of heroin subcutaneously. The operation was begun under Schleich's infiltration anæsthesia, the omentum was removed, and only for the detachment of the hernial sac, which was too painful under local anæsthesia, was kelene narcosis used. The course of the narcosis was faultless and the patient was cured.

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[13] Zahnärztl Rundschau, 8 October, 1899.

[14] In England, there are already some who are interested in the subject of ethyl chloride narcosis. In *The Birmingham Medical Review*, January, 1900, J. W. McCardie brought out a translation of my article in the Arch. f. Klin. Chirurg., with the intention of stimulating the study of the subject. In a short communication, he tells me that he has not yet had an opportunity of anæsthetising with ethyl chloride, as dentists and surgeons have such good results with nitrous oxide and ether, that they rather mistrust novelties. In surgical practice, I think that preference should be given for minor work to ethyl chloride rather than ether.

Since we have undertaken longer narcoses we have more often observed vomiting. But even if larger quantities be used it is never so violent as after chloroform or ether, generally only takes place once and for a short time, and afterwards the patients are in the best possible condition. They do not complain of unquenchable thirst as otherwise is the case, but have rather a feeling of hunger, and often eat with a hearty appetite. Seitz mentions that in one case hæmatemesis occurred after ethyl chloride. The patient had immediately before been anæsthetised with ether, and under it a tooth had been drawn for her. It is quite possible that the blood had been swallowed after the extraction, and only vomited after the second narcosis.

As concerning the precautions which are to be used in order to avoid unpleasant surprises, it follows from experiments on animals and our observations on the human subject, that it is of the first importance to administer ethyl chloride in small doses only (at the most 3 g. at the commencement). Hence, tubes with wider mouths must be rejected altogether. In order to avoid the inhalation of concentrated vapour, I would caution against narcotising with an ether mask, or with one designed for bromethyl and known as Gleich's, and would rather recommend that only an inhaler with inspiratory and expiratory valves be used. We now exclusively use Breuer's mask, which is very easily managed and durable. Very exact dosage can be obtained by it, and the quantity of the drug can be read off on the flask.

I would caution, if the patients begin to be restless or to strain, against pouring out a fresh dose, until one has previously convinced oneself by smelling at the expiratory valve that there is no longer any ethyl chloride being exhaled. Only if minute and exact attention be paid to the narcosis do I consider it to be without danger. Much of the drug must not be used. (Children and weakly persons need on an average 1 g. or less per minute, strong people about 1½ g., drinkers and those who have already been often narcotised, 2 g. per minute). Practice, indeed, plays an important part; I see it, for example, when I myself anæsthetise a patient. I use about half as much of the drug as another less practised. If marked excitement occurs, or the face becomes cyanotic, the mask must immediately be removed, and the face rubbed with a wet cold towel.

THE CONSULTATIVE INSTITUTE.

At the meeting of the General Medical Council, held on the 29th ultimo, the case of the Birmingham Medical and Surgical Consultative Institute came up for consideration. It will be remembered that a series of meetings of the consultants of the town was held in the summer of last year, to consider the attitude which should be adopted towards the proposed institution, and that as a result an unavailing attempt was made to enter into some arrangement with its supporters which might lead to the abandonment of the scheme. A general meeting of the profession was subsequently called, at which a resolution was unanimously carried expressing the opinion that no medical man ought to associate himself with the movement as proposed by its founders. Reports of these various meetings were published in *The Birmingham Medical Review* for July and August, 1899. In spite of warnings as to what would inevitably follow if the ordinary rules of professional conduct were not observed, the scheme was actually put into operation in the course of the spring of the present year, and about 2,000 large placards were forwarded to various works, places of business, and shops in the town, setting forth the name and qualifications of the physician who had accepted the post, together with his address, hours of consultation and fee, and accompanied by circulars and printed pamphlets. Advertisements of the same nature also appeared in the daily and evening papers.

The charge preferred against the medical officer before the General Medical Council is stated in the *Times* of November 30th to have been as follows :—" That he accepted the office of consulting physician to the Consultative Medical and Surgical Institution, Birmingham, at a salary, and approved or aquiesced in the extensive advertisements issued by that institution by posters exhibited in the various manufactories, trading establishments, and mercantile offices of the city, by advertisements in the daily Press, and by lithographed letters and printed pamphlets, widely circulated, setting forth conspicuously his name and medical qualifications, and referring to his special ability as a general consulting practitioner, and soliciting and inviting the public to consult him at a reduced fee." The charge was supported in person by Dr. Bateman, on behalf of the Medical Defence Union ; and Mr. Freeman, Q.C , appeared for the defendant practitioner. After a prolonged consideration of the case, in the course of which evidence in favour of the institution was given by Alderman Cook, Mr. Arthur Chamberlain, Mr. W. Smedley, and Mr. Aston, the Council held that the charge was proved, but postponed any further action until the May session, in order that the medical officer might have an opportunity of reconsidering his position.

This result will be received with satisfaction by every member of the medical profession, as well as by many others who understand the seriousness of the issues involved. We are glad to note that Mr. Chamberlain is reported to have said that the managers of the institution were glad to come before the Council in order that it might decide what was right and what was wrong in its proceedings. This is an attitude which everyone will appreciate, and if Mr. Chamberlain will loyally abide by the decision of the Council, a satisfactory termination will be arrived at of a state of affairs which none regret more than those who have been compelled to take a line of action so completely justified by the event.

REPORTS OF CASES.

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A CASE OF LATENT MITRAL STENOSIS.

BY T. SYDNEY SHORT, M.D., M.R.C.P.,
PHYSICIAN TO THE INFIRMARY AND ASSISTANT PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM.

A WELL-MADE strong-looking man, aged thirty-five, was admitted under my care in the Infirmary on September 3rd of this year with dropsy of the lower extremities and great dyspnœa. He was unable to lie down, and had a harassing cough, usually ineffectual, but at times resulting in the expulsion of slightly frothy sputum tinged with bright red blood without any rusty hue.

He said that he had always enjoyed fair health till about two months before admission, when his feet began to swell and his breathing became short; since then he had steadily and gradually got worse.

On examination it was found that his heart was enlarged, rapid in action (120), and a little irregular, and that there was a short presystolic murmur heard at the apex. There was marked tricuspid regurgitation with a murmur at the lower part of the sternum, and the right ventricle was felt beating in the epigastrium. The liver was distinctly but not excessively enlarged, and not tender on pressure. The legs, scrotum, penis, and lumbar region were all œdematous. The lungs were resonant all over, and fine crepitations, without further evidence of consolidation, were heard over the lower half on each side. The breathing, although only about 28 to the minute, was laboured and distressful. The urine was scanty in amount and contained much albumen and a little blood. The case was evidently one of mitral obstruction and regurgitation with intense congestion of the lungs without pneumonia.

No history could be obtained of the onset of the heart trouble. He had never had rheumatism or scarlet fever, and had never been ill, so far as he knew, until about two months before he was seen. He told us that he had served his full time in the army, and had worked as a labourer for the last seven years without any shortness of breath.

Mustard poultices were applied to the chest, and he was put upon digitalis and strychnia. During the first week he improved a little, and the urine increased in amount. Blood was then abstracted from both lung bases by smart dry cupping, and an attempt was made to loosen the sputum by salines and iodide of potassium in small doses given every four hours. On the third day an herpetic rash appeared on the nape of the neck, over the nose and cheeks, and on the back of the hands, so that the last named drug was stopped. The temperature had been irregular, varying from normal to 101°, and he suffered much from sleeplessness.

During the next fortnight he remained in much the same condition. The cupping was repeated, and seemed to relieve the breathing temporarily, but still very little air entered the lower part of the lungs, and the hæmoptysis—always small in amount—continued. The right side of the heart emptied itself better, and the murmur at the apex ceased to be heard. He was not cyanosed, and the superficial veins not being distended venesection did not seem to be called for. No pneumonia developed. The insomnia continued, and had to be relieved by hypnotics. He himself seemed unconscious of his critical condition, and wanted to get up and walk about. It is somewhat remarkable that his appetite remained good all through, and he took all his food, including solids, with a relish, and digested it too.

During the next week he began to wander in his talk and steadily got worse, although all the physical signs remained much the same. He became very delirious, and saw strange people and animals about his bed. On the morning of the 25th day his respiration quickened, and bronchial breathing could be heard over the base of each lung. Pneumonia was imminent, but collapse set in somewhat rapidly, and he died in a few hours.

At the autopsy, made by Dr. Higginson my house physician, the heart was found enlarged, the valves healthy except the mitral, which was funnel-shaped and admitted one finger only; its valves were inoperative and a tube-like communication existed between the auricle and ventricle. Numerous hæmorrhagic infarcts were found at the lower parts of each lung, about ten in all. The lower lobes were airless and in a condition of red hepatisation. There were no infarcts in any of the other organs. The liver was typically nutmeg, congested and enlarged. The kidneys were acutely congested but showed no signs of actual disease.

Remarks.—Amongst the many points of interest in this case, special attention may be called to the fact that the patient must have had a constricted mitral valve for a long time without any symptoms which caused him even the least inconvenience. He always considered himself sound and healthy. An adherent pericardium was suspected, as it seemed difficult to explain such a complete breakdown of the musculature of the heart, with no real amelioration under treatment, on any other grounds. Against this however, was the complete absence of scarlet or rheumatic fever history and his ignorance of any heart pain or trouble at any time. The autopsy showed that the pericardium was healthy.

MEDICAL ABSTRACTS.

REPORT ON RENAL AND URINARY DISEASES.

BY PROF. ROBERT SAUNDBY, M.D., LL.D., F.R.C.P.

BRIGHT'S DISEASE.

Thursfield, H. *Skin Affections in Bright s Disease.—British Medical Journal*, March 17th, 1900.

At a meeting of the Royal Medical and Chirurgical Society held on March 13th, 1900, Dr. Hugh Thursfield read a paper upon this subject in which he described the various forms of skin eruptions which have been met with in Bright's Disease, and attributed their causation either to drug administration or to a toxin or combination of toxins, the skin being affected through the vasomotor and trophic nerves, or through the direct action of the poison excreted through its glands. In the course of the discussion Dr. Pye-Smith thought that many of these eruptions were merely coincidence. He doubted whether eczema had any direct relation to nephritis. Dr. Radcliffe Crocker thought that the association of albuminuria with skin affections did not necessarily suggest kidney disease. Dr. Sydney Ringer thought the toxins more probably acted directly upon the skin rather than through the nervous system. He suggested that there might be some microbic action. Dr. Caley referred to the frequent co-existence of exfoliative dermatitis and renal disease. The President, Dr. Pavy, thought that the skin affections were induced by a poison which gave rise to a neurosis. This poison was certainly not urea, but was, as Dr. Bradford's experiments had shown, a product of faulty metabolism.

Reichel. *Œdema in Bright's Disease.—Centralbl. f. inn. Med.*, October 15, 1898.

Investigations into the power of absorption by the tissues of renal patients compared with that in heart disease and in healthy individuals show that in renal patients there is a great delay in the absorption of fluids, sometimes as much as eight or ten days having elapsed before all swelling had disappeared after the subcutaneous injection of 50 cc. of saline solution. Reichel claims to have discovered by these investigations an alteration in the power of absorption in renal disease, and to have thus obtained experimentally an explanation of the cause of renal dropsy.

Holst, P. E. *Hæmorrhagic Nephritis as a Manifestation of General Infection.—Norsk. Mag. f. Laegevid.*, lx., 825, July, 1899.

The author records three cases in which acute hæmorrahagic nephritis was the expression of an otherwise more or less latent blood infection. In the first streptococcus infection was only found in the *post-mortem* room; streptococci were present in the blood, liver, kidneys and spleen. The illness had lasted for about eight months, and had all the appearance of a hæmorrhagic nephritis except that during the last few weeks there had been no fever. In the second case there was also no fever, but the staphylococcus albus was found in the blood. The third case left the hospital uncured; it was that of a patient who had for long suffered from valvular heart disease, but who suddenly developed nephritis. The urine showed masses of micrococci, and cultivations always gave the staphylococcus albus.

Brill and Libman. *A Contribution to the Subjects of Chronic Interstitial Nephritis and Arteritis in the Young, and Family Nephritis.* — *The Journal of Exp. Med.*, September and November, 1899.

Of 251 cases of chronic nephritis observed by Heubner in Leipsic, 214 occurred in adults and 37 in children. He subsequently saw 28 cases of children in Berlin, mostly after scarlet fever. Of these 65 cases there were 3 of parenchymatous nephritis, 4 of contracted kidney, and 5 of chronic hæmorrhagic nephritis. Bartelo has observed chronic interstitial nephritis in one case at the age of eighteen, of another at nineteen, and in two at twenty. The authors record a case in a young girl aged 14 years. Heubner states that there are only thirty cases of interstitial nephritis in children on record in which *post-mortem* examinations have been made. He adds to this list 4 cases from his own experience. Three are males aged respectively eight, eleven, and twenty-four, and one a female aged eleven. There are seven cases in which there is no history of a previous attack so that they may be looked upon as instances of primary disease. The five noted cases of death were aged five, six, ten, thirteen, and fourteen years respectively. Heubner had a case of this class, a boy aged nine, who presented typical symptoms of chronic interstitial nephritis. Baginsky and Weigert have reported cases in which interstitial nephritis was congenital. In the authors' case the kidneys were very small, the right weighing 59, and the left 34½ grammes. They showed characteristic changes of diffuse chronic interstitial nephritis with hypertrophy of the heart. They think it may possibly be a case of so-called family nephritis, although they fail to give any evidence of other members of the family suffering from the same disease.

Parkes Weber. *The Unimportance of the Presence of a trace of Albumen or Nucleo-Albumen in Urine of Low Specific Gravity.* —*British Medical Journal*, January 6, 1899.

The object of this paper is to emphasise the unimportance of a faint trace of albumen found by boiling and acidulating with acetic acid. The only consideration which the author brings forward in support of his view of its unimportance is its frequency. Undoubtedly the importance of the occurrence of such a trace of albumen taken by itself should not be exaggerated, but such a faint trace may be all that is recognisable in what may prove to be advanced chronic Bright's Disease.

Poteenko. *The Treatment of Uræmia by Subdermal Injections of Saline Solution.—Med. Obosv, Bd.* 50, *Heft* 8, 1898.

Lignerolles. *Treatment of Uræmia by Injections of Serum from the Renal Vein.—Treatment*, October 12, 1899.

Poteenko reports two cases of severe uræmia occurring in acute parenchymatous nephritis treated by subcutaneous injections of physiological saline solution. 300 cc. of the solution at a temperature of 40 c. were injected each time. Both cases were completely cured by this method of treatment.

Acting upon the hypothesis that the normal internal secretion of the kidneys acts as an antitoxin against the hurtful substances which the kidneys in Bright's Disease are unable to excrete Dr. Lignerolles, under the inspiration of Professor Teissier, has experimented with the blood of the renal veins of a young and healthy goat which was drawn antiseptically, the serum being allowed to separate and then put in 20 cc. bottles. Two cases were related, and also one by Professor Turbure, of Bucharest. In the last the blood used was from the renal vein of a dog. In all three cases improvement followed the injections.

Bronowski, S. *Strontium Lactate in the Treatment of Renal Disease.— Centrlbl. f. inn. Med.*, November 4, 1899.

Strontium lactate causes a general lowering of the blood pressure in animals. Renal irritation is induced if more than a grain for every kilo. of the animal's weight is given. The diuretic action depends in all probability on dilatation of the blood vessels of the kidney, and this diuresis occurs in the majority of cases.

THE URINE.

Predöhl, A. *Bacteriuria.—Munch. med. Woch.*, Nov. 7, 1899.

Escat. *Alkaline Bacteriuria.—Journal of Cutaneous and Genito-Urinary Diseases*, February, 1900.

Richardson, M. W. *Urotropin as a Urinary Disinfectant.—Journ. of Exp. Med.*, January, 1900.

Cammidge. *Urotropin as an Antiseptic.—Brit. Med. Journ.*, March 17, 1900.

Ashurst, W. *Effects of Benzoic Acid on the Urine.—Phil. Med. Journ.*, February 24, 1900.

Predöhl describes bacteriuria as occurring in acute, sub-acute and chronic forms which correspond to the descriptions very severe, severe, and mild. All his patients were women. The disease attacks suddenly individuals whose previous health has been good. He thinks exposure to cold, long retention or urine, and habitual constipation play some part. In all instances the organism found was the bacillus coli. Salol internally gave the best results. Warm baths afforded great relief, but the prognosis is doubtful and the disease is always serious.

Escat describes two cases of alkaline bacteriuria of quite a different type to the above as they occurred in men and were probably due to the use of instruments. They were cured by daily irrigations of the bladder with boracic acid solution without the use of a catheter.

Richardson reports on the value of urotropin as a disinfectant of the urine after typhoid fever. The typhoid bacillus was found in 9 out of 38 cases in one series and in 14 out of 66 in another. Of the latter series nine cases were treated with urotropin and in every instance the bacillus disappeared from the urine. The drug was administered in doses of ten grains three times a day. He advises the administration during convalescence from typhoid fever of thirty grains of urotropin daily for ten days in order to secure the disinfection of the urine, which he holds to be an important sanitary measure.

Cammidge confirms the inhibitory action of urotropin on the growth of the typhoid bacillus in urine and makes the same suggestion as to the regular treatment of typhoid fever patients by this drug. He remarks on its usefulness in cystitis or enlarged prostate and stone, in bacteriuria and nocturnal enuresis.

Ashurst finds that benzoic acid has a marked influence in indefinitely postponing the occurrence of alkaline fermentation. It does not increase the acidity of the urine. A distinct germicidal quality is, however, present in urine to which benzoic acid is added. It may be exposed for several days with very slight growth of bacteria. It prevents the decomposition of the urine into ammonia and carbon dioxide and thus averts the danger of cystitis. The diuretic effect is slight and inconstant.

Jolles, A. *Detection and Estimation of Bile Pigments in Urine.—Zeits. f. Phys. Chem.*, 1899, vi., p. 83.

Biffi. *A New Test for Bile in the Urine.—Gazz. degli Osped.*, February 11th, 1900.

Jolles recommends the following method:—

Shake 10 cc. of urine with 1 cc. of chloroform and 5 cc. of a 10 per cent. solution of barium chloride and allow the mixture to settle. Decant off the clear liquid and shake the residue with 2 or 3 cc. of Hubl's $\frac{N}{100}$ iodine solution and 1 cc. of strong hydrochloric acid. If bile pigment is present, the chloroform solution, the supernatant fluid, and the precipitate are all coloured green or greenish-blue.

Biffi's plan is to take 150 to 200 cc. of urine, strongly acidify with sulphuric acid, then add drop by drop a 5 per cent. solution of barium chloride (30 drops to every 100 cc. of urine). Drain off the liquid urine, and pour the soft precipitate upon a piece of absorbent wool. Spread the precipitate evenly over the surface of the wool, and place upon it a crystal of bichromate of potash. If bile is present a green ring will appear round the crystal, changing later to blue, and then red. Fuming nitric acid may be used instead of bichromate of potash, but this reaction is neither so delicate nor so rapid. A small quantity of albumen does not disturb the reaction. If there is much, the author recommends the substitution of a saturated solution of sulphate of soda for the sulphuric acid.

Bradshaw and Warrington. *The Association of Albumosuria with Bone Disease.—Brit. Med. Journ.*, December 28th, 1899.

At a meeting of the Royal Medical and Chirurgical Society on March 14th, 1899, Drs. Bradshaw and Warrington described a case which was at first characterised by the persistent occurrence of albumose in the urine. Shortly before death indications of softening of the ribs and sternum appeared and at the autopsy it was found that the softening of the bones was due to multiple myelomata.

In a subsequent communication to the Liverpool Medical Institution, on December 14th, 1899, they pointed out that the peculiar body known as Bence Jones's Albumen had been recognised in all in 11 undoubted cases.

Lommel. *The Origin of Oxali: Acid in the Urine. Archiv f. klin. Med.*, v. and vi

The origin and source of oxalic acid, which in some cases causes such a copious deposit of oxalate of lime crystals in the urine are very obscure. Beneke believed that it was due to defective oxidation of the nitrogenous principles of food, and excessive deposits of oxalate of lime are commonly associated with neurasthenia. But many modern writers have attempted to show that oxaluria is dependent upon the ingestion of this acid in various articles of diet, tea especially being blamed for its introduction to the body. Few clinical physicians can have felt satisfied with this explanation, for although we may not believe with Harley and Begbie that the neurasthenic symptoms so often associated with it are the result of chronic oxalic acid poisoning, there can be no doubt that oxaluria is a pathological condition and not simply dependent upon the oxalic acid in food. The most recent investigation upon this point is that of Lommel who takes this view. According to him the amount of oxalic acid in the urine and fæces after ingestion of considerable quantities of oxalic acid is only a small portion of that introduced, the greater part being probably decomposed in its passage through the organism and also perhaps in the intestine. Its elimination bears a direct relation to albuminoid metabolism; a diet which is rich in nuclein, induces in addition to an increased elimination of uric acid a considerable increase in the elimination of oxalic acid. Gelatine produces the same effect.

MISCELLANEOUS.

Hermann. *Treatment of Renal Concretions of Uric Acid with Glycerine.—Medical Chronicle*, January, 1900.

The glycerine is given in doses of from 1 to 4 ounces, dissolved in an equal quantity of water, and taken as one dose between two meals, and repeated two or three times in a period of several days. It had been used in 115 cases of nephrolithiasis, and in 60 per cent. of these it proved efficacious either by removing concretions or by relieving the pain associated with the stone. The only unpleasant effects observed were headache in twelve nervous patients, and diarrhœa in three where the digestive organs were not healthy. In all fifteen, these effects disappeared in the course of a few hours. It is recommended that the initial dose should be smaller than that named above and that it should be gradually increased. The presence of albuminuria does not contra-indicate its employment. Hæmaturia occurred in six cases which was attributed to the glycerine causing changes in the position of the stone.

Fleming and Miller. *A Family with Addison's Disease.—Brit. Med. Journ.*, April 28, 1900.

The authors record the case of a woman aged 28, the mother of four children, who for seven years had been gradually becoming more pigmented and suffering from weakness, attacks of diarrhœa, vomiting, giddiness, and faintness. There was breathlessness on exercise with palpitation and pain over the heart, but no cardiac murmur. Her skin was extremely dark, the nipples being deeply pigmented, and there were a number of dark almost black spots scattered over the whole body. Recently the mucous membrane of the mouth had become markedly pigmented. The eldest child, a girl aged seven, had been getting darker since an attack of gastritis four years ago. Her nipples were very dark and there were black spots or moles all over the body. She had had frequent attacks of causeless sickness and diarrhœa. She suffered much from headache and was unable to endure any bodily or mental exertion. The next child was a girl aged four, whose skin had begun to darken a year ago. She had numerous black spots all over the body, and was subject to attacks of diarrhœa and sickness.

The third was a boy, aged 3½, who had always had a dark complexion, but black spots scattered over the body appeared six months ago. He also complained of frequent attacks of sickness and sometimes of diarrhœa.

The fourth child was a girl, aged 2½, of fair complexion, but she had been getting distinctly darker during the last four or five months. Two black spots had appeared, one on the abdomen, and one on the thigh, and there had been occasional attacks of diarrhœa.

Klippel. *Cerebral Toxæmia in Addison's Disease—Soc. de Neurol. de Paris*, December 7th, 1899.

A man, aged 57, suffering from Addison's disease, was subject for the last few months of his life to violent attacks of delirium and convulsions. Death was preceded by coma. The delirium commenced with incoherent words and cries; he would then jump out of bed and run about the room until he was seized with a sort of convulsion. After a while he lost consciousness. They found at the autopsy, œdema of the meninges, increase of leucocytes round the cells and vessels of the cortex, globules of myelin in the white substance, and disseminated nerve degeneration in the posterior and lateral columns of the cord

J. Mannaberg and J. Donath. *Recherches sur l'hémoglobinurie paroxystique.—Deutsch. Arch. f. klin. Med.*, lxv., 3, 4.

The authors have carefully examined three patients suffering from paroxysmal hæmoglobinuria due to cold. As a result of cold the urine became reddish brown, giving the spectroscopic appearance of oxy-hæmoglobin with entire absence of red corpuscles. Warmth speedily caused the urine to regain its normal appearance. The urinary phenomenon could always be produced by a more or less prolonged foot bath, and the immersed parts showed vaso-motor troubles in the form of erythematous patches. Just before the appearance of the hæmoglobinuria, hæmoglobin could always be found in the blood serum. Examination of the blood showed that the red corpuscles gave up their colouring matter much more easily than in health, and that the simple application of an elastic band round a limb caused the serum to become reddish. Slightly agitating a little of the blood in a test tube would cause the solution of hæmoglobin, and the same result followed from placing it in an atmosphere of carbonic acid; the same may be observed with normal blood, but to a less degree. The search for a hæmolytic ferment was fruitless; mixture of the serum from the blood of their patients with normal blood produced no result. The authors conclude from their observations that the diminution of resistance in the red blood corpuscles combined with sluggishness of the circulation plays a chief part in the production of the attacks, but that it is not possible at present to express a definite opinion upon the nature of the disease.

REPORTS OF SOCIETIES.

British Medical Association.

Birmingham and Midland Counties Branch.

The Second Ordinary Meeting of the Branch for the Session was held in the Medical Institute, on Thursday, November 8, 1900, the President, Dr. Milner Moore, being in the Chair.

Fifty-four members and one visitor were present.

The following gentlemen were elected members of the Branch, viz.:—W. D'Este Emery, M.D., Birmingham; R. M. Heggs, L.R.C.P., M.R.C.S., West Bromwich; R. F. C. Leith, M.B., M.A., Birmingham; W. H. Pollard, M.B., Smethwick; J. R. Ratcliffe, M.B., Moseley.

Excision of Tongue.—Mr. Haslam showed a man, aged fifty-five, from whom he had removed the anterior two-thirds of the tongue, together with the tissues of the floor of the mouth and the sub-maxillary lymphatic glands, for carcinoma, in December 1898. The disease had been rapid in its onset, and the case looked unpromising. Both lingual arteries were ligatured, and the disease freely excised through a large sub-mental incision. There had been no recurrence, and the patient was in good health.

Chronic Intussusception of the Small Intestine.—Mr. George Heaton showed a large intussusception removed from a boy, aged six, by enterectomy. The intussusceptum was six inches long and was in the upper part of the jejunum. The apex of the intussusception was gangrenous, while the entering and returning layers were firmly united to one another at the upper end by old adhesions. It was a specimen of the somewhat rare condition of chronic intussusception. The child had suffered from the disease for more than three months, his main symptoms being recurring attacks of acute abdominal colic with vomiting, rapid emaciation, rapid pulse, and towards the end of the case the appearance of a moveable abdominal tumour. Several of the most prominent and distinctive symptoms of intussusception were absent throughout. No blood or mucus was passed per rectum, and the bowels though somewhat constipated, acted well throughout his illness to enemata.

Tubal Pregnancy.—Mr. John W. Taylor showed a specimen of *Unruptured* Tubal Pregnancy, in which the stretching of the walls of the Fallopian tube, the thinning of its coats, and the separation of the muscular layer caused by the growth of the pregnancy were all plainly seen. At one part nothing was left of the tube but the single layer of peritoneum covering the abdominal surface. Here the swelling caused by the pregnancy and intra-tubal bleeding was protruding and pointing like the head of a boil, the contents of the tube being on the very point of escaping upwards into the abdomen.

Chronic Enlargement of the Pancreas.—Mr. Barling read a Paper on this subject, which is published in full in the *British Medical Journal.*

Some of the Surgical Aspects of Cholelithiasis.—Mr. Jordan Lloyd read a paper on this subject. He called attention to the frequency with which gallstones were met with in *post-mortem* examinations made upon persons dying from all diseases, and the comparative infrequency of their recognition in the living, and thought the discrepancy depended upon their non-recognition in the latter; an oversight due usually to misinterpretation of the symptoms to which they give rise. Many of the cases of painful indigestion, spasms, colic, wind gastrodynia, abdominal neuralgia, &c., were really due to the presence of gallstones. He deprecated the common custom of using abstract phrases, such as indigestion, dyspepsia, &c., to explain groups of symptoms, the elucidation of which is not grossly obvious. He instanced many cases of chronic indigestion which were not permanently relieved until their symptoms had been traced to gallstones, which were successfully dealt with by operation. He discussed at length the leading symptoms upon which diagnosis has to be made, and referred to many common fallacies which exist with regard to most of them; for example—the common idea that gallstones should not be thought of unless jaundice declares itself at some time or other, whereas in the majority of cases of gallstones jaundice is conspicuously absent even although calculi may be lying in the common bile duct. He detailed several cases illustrating the point. He pointed out also that in chronic cholelithiasis the gall-bladder is usually thickened and contracted by inflammatory processes, so that it cannot dilate to form a tumour. The absence, therefore, of a tumour due to the distended gall-bladder, is evidence of no value whatever. He described a mode of examination which he called the "liver bump," by which a sharp stabbing pain may be elicited by suddenly prodding the belly in the gall-bladder region. He regarded Osler's group of symptoms as almost diagnostic of stone within the common bile ducts, and instanced cases in support of his contention. The question of the attitude of the attendant, as regards the matter of treatment, towards a patient in whom gallstones had been diagnosed was then discussed. He agreed with the dictum of Robson on this point—that as soon as serious symptoms occurred, removal by operation was the only rational treatment. The dangers of operating were almost entirely the result of delay, as the mortality of simple cholecystotomy for stones within the gall-bladder was probably less than 2 per cent. The paper was based on a personal experience of between sixty and seventy operations; the specimens removed being exhibited to the meeting.

The papers were discussed by Dr. T. E. Underhill, Mr. J. W. Taylor, Mr. Alfred Freer, Mr. Smallwood Savage, Dr. Melson, and Mr. Morrison; and Mr. Barling and Mr. Jordan Lloyd replied.

MIDLAND MEDICAL SOCIETY.

The Annual Meeting was held at the Medical Institute, on Wednesday evening, October 17th, the President, Dr. Rickards, in the Chair.

The Rules of the Society were considered and amended.

The following Officers were elected for the ensuing Session:—President, Mr. Jordan Lloyd; Treasurer, Mr. Garner; Hon. Secretaries, Mr. Christopher Martin and Dr. J. W. Russell; Members of Council, Mr. Wood White, Mr. Haslam, Mr. Morrison, Dr. Nelson, Mr. Chavasse, Mr. J. W. Taylor, Mr. Bennett May, Dr. Foxwell, Mr. Barling, Mr. Heaton, Dr. Kauffmann, and Mr. Marsh.

The Inaugural Meeting was held at the Grand Hotel on Friday evening, October 26th. The President, Mr. Jordan

Lloyd, held a Reception from 7.30 to 8 p.m. Sir A. R. Simpson then delivered an address on the Evolution of the Midwifery Forceps. Various exhibits of drugs, medical instruments, &c., were on view during the evening.

The first ordinary meeting of the Session was held in the Medical Institute, on Wednesday, November 14th, 1900, the President, MR. JORDAN LLOYD, in the Chair.

The following gentlemen were elected members of the Society:—Messrs. W. Donovan, E. Hadley, F. W. Moir, J. Bust, R. E. Sedgwick, and B. Wall.

Uterus Removed by Abdominal Section.—Dr. Malins showed a large uterus, removed by abdominal section after a difficult labour. The patient, æt. 43, had been in labour some hours before a medical man was called in. The presentation was stated to be "a head, arm, and hand." Collapse followed, and signs of rupture. Forceps were tried, then delivery effected by turning. The whole front of the vaginal attachments including the bladder were found separated from the uterus. The left broad ligament was torn half way up its depth; the right broad ligament three-quarters of its depth. The patient lived for 60 hours, dying of septic peritonitis.

The uterus was remarkable for—

1. The thickness of its walls—2 inches.
2. The clearness of the placental site.
3. The absence of Bandl's or contraction ring.

Subcutaneous Rheumatic Nodules, without obvious joint trouble.—Dr. Short read notes of a case of subcutaneous rheumatic nodules occurring on the scalp of an adult. The patient was a woman, aged 29, who had developed the nodules six weeks before being seen; they ached severely, and were tender, being present on the occipital ridges, the frontal ridges, and the temporal bone above the mastoid. There was no history of rheumatic joint trouble, but pains in the limbs had been present, and the heart showed signs of early mitral stenosis. The nodules disappeared rapidly under treatment

Although met with in children, this condition is rare in adults.

Iron nut and screw removed from the skull.—Dr. Lonel exhibited an iron nut and screw, with a circular piece of bone, which he had removed by trephining from a man's skull.

The man had been thrown out of a cart, had pitched on his head on the hard road upon the nut, with the result that the nut had passed through the skin, had punched out a piece of bone in the region of the occiput, and lay buried in the hole it had made in the skull—the circular punched out piece of bone lying loose on the surface of the dura mater. The curious part of the case was that the injury gave rise to hardly any symptoms, except a temporary dimness of sight, and that the appearance of the wound aroused no suspicions that a foreign body had passed through it—this only being discovered at the time of the operation. A fracture of the bone only was diagnosed. The patient made a good though rather tedious recovery.

Gastro-jejunostomy.—Mr. Haslam showed a preparation from a patient on whom he had recently performed gastro-jejunostomy for symptoms of pyloric obstruction. The man, aged 67, was greatly emaciated, and though no tumour could be clearly felt, it was thought that the case was probably one of malignant disease of the pylorus. Puckering and thickening were felt in this situation at the operation, but the patient was in too feeble a condition for prolonged examination. He died, five days after operation, of broncho-pneumonia. At the autopsy the pylorus would easily admit the finger, and there was an ulcer rather larger than a shilling of a simple nature in this position. The obstruction was evidently the result of violent spasm of the pylorus, due to irritation from the ulcer.

Dr. Thos. Wilson read a paper on the Varieties and Treatment of Prolapse of the Uterus and Vagina.

REVIEWS.

◆

INJURIES TO THE EYE IN THEIR MEDICO-LEGAL ASPECT.*

THE numerous actions for damages for injuries to the eyes, under the Workmen's Compensation Act, make it evident that a work treating of such in their medico-legal aspect is needed. This monograph is eminently adapted to fulfil such a requirement. The subject matter is arranged under the headings of I. Traumatic Lesions of the Adnexa. II. Traumatic Lesions of the Eyeballs. III. Simulated or Exaggerated Affections of the Eye; and IV. Medico-Legal Expert Testimony. Each section is lucidly treated, and the all-important element of prognosis is fully discussed in every instance. Among the methods of diagnosis and localisation of foreign bodies in the eye, we miss the mention of the valuable help of the Röntgen Rays; but, no doubt, this omission will be corrected in a future edition. Illustrative cases bearing on the subject of the text and mostly under the author's own care, are dispersed throughout the book and form not the least useful and instructive feature of the work. Model medico-legal reports, and answers to probable questions of Insurance Companies and counsel, are also given, and form a useful guide to the uninitiated. The section on Simulated or Exaggerated Affections of the Eye, is extensively dealt with, and with the instructions given, including no less than ten tests for simulated amaurosis and amblyopia, the merest tyro should have no difficulty in discovering deception. The chapter on Medico-Legal Expert Testimony is written by Charles Sinkler of the Philadelphia Bar, and though not exactly coinciding with British Law, it contains numerous useful hints, and many suggestions for much needed reforms in the conduction of expert evidence. In discussing who is, and who is not an expert, he says, "a physician is not competent to testify as an expert concerning matters pertaining to a special branch of his profession, unless he has devoted himself particularly to that branch. He is not an expert in a subject of his profession entirely out of the line of his usual practice and study." After perusing this monograph, and noting the intricate course and complications of many eye troubles, we cannot but feel that this applies with special force to expert evidence in eye cases; but whoever has to give evidence with regard to diseases or injuries of the eye,—be he specialist or general practitioner—should not be without this handy book of reference, for, though small, it is essentially a book for reference, and its exhaustive bibliography makes it a complete one of its kind.

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* Injuries to the Eye in their Medico-Legal Aspect. By S. Baudry, M.D., Professor of the Faculty of Medicine, Univ. of Lille, France, &c. Translated from the original by Alfred James Ostheimer, M.D. of Philadelphia. Revised and Edited by Charles A. Oliver, A.M., M.D., Ophthalmic Surgeon to the Philadelphia Hospital, &c.

OPERATIVE AND PRACTICAL SURGERY.*

MR. CARWARDINE's book describes not only the chief operations of Surgery, but also gives a short account of the subjects of Surgical bacteriology, the application of bandages, and the treatment of fractures and dislocations. The authors of most of the previously published books on Practical Surgery have confined themselves, in the section dealing with operations, to descriptions of minor operations; but Mr. Carwardine goes further than this, for he describes with considerable fulness most of the operations of Surgery, both minor and major.

The chapter on bacteriology is concise and to the point, as also is that dealing with the proper methods of examining patients. In this latter chapter we notice that no description is given of the systematic examination of the elbow joint. This is an omission which should be remedied in a future edition; for we have often noticed that students, while they are as a rule fairly conversant with the proper way of examining the hip-joint, usually examine the elbow-joint in a hopelessly unmethodical manner. On page 85 we notice the remark, that "it is not usual, however, to reduce impacted fractures." This remark is too sweeping; for is it not usual to reduce the impaction in a Colles's fracture, and does not the often occurring permanent deformity frequently depend on the fact that the impaction has never been properly reduced? The descriptions of the treatment of special fractures are excellent, and the illustrations are remarkably clear.

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* Operative and Practical Surgery. For the use of Students and Practitioners. By Thomas Carwardine, M.S. (Lond.), F.R.C.S. Bristol: John Wright and Co. 1900.

The author has made a wise selection in choosing what operations he should describe; but we cannot help thinking that it is a mistake to insert such descriptions as that of Berger's amputation. It would be better to give no description at all, rather than one which is too short to be of any service. In his preface the author states that he has not hesitated to mention original methods. This is as it should be; for an author ought, as far as possible, to stamp his own individuality upon his book. But at the same time a special operation should be described according to the method of its originator. Now, Mr. Carwardine describes the skin incision in Macewen's osteotomy of the lower end of the femur as being made a little above and to the front of the adductor tubercle. Anyone referring to Mr. Macewen's book on the subject will see that he expressly lays down that, in fixing the distance above the knee-joint at which the incision should be made, the adductor tubercle should not be taken as a landmark, as its position is not constant in cases of knock-knee. And Mr. Macewen's contention, like most of his contentions, is based on a sound knowledge of the pathological anatomy of the affection.

We have called attention to some minor points in this book, which we think might well be revised in another edition. Such we deem to be the duty of the reviewer; but it is also our duty to say that we have formed a very high opinion of

Mr. Carwardine's book, which is one of the best manuals on Practical Surgery that we have met with for a long time, and which should prove most useful to the student and to the practitioner.

MEDICAL AND SURGICAL NURSING.*

THE main point of distinction between this and other treatises on the art of nursing lies in its multiple authorship. Dr. O'Brien has himself supplied two chapters on fractures, dislocations and wounds, and on the management of infants and children. But with this exception, each individual chapter is by a different author. The subjects dealt with include not only general medicine and surgery, but diseases of women, obstetrics, nervous and mental diseases, and diseases of the eye and ear. There is also an unusually elaborate section on the recognition and treatment of the symptoms of various poisons, and the book ends with an admirable and very practical chapter on cooking for the sick. In general, it may be said that the contributions are good as far as they go, but we are inclined to think that in their praiseworthy endeavour to avoid the common mistake of introducing matters which it is beyond the province of a nurse to know, the writers have gone somewhat to the opposite extreme and have rather unnecessarily limited the scope of their remarks. The fault, however, is on the right side.

TRANSACTIONS OF THE SIXTH INTERNATIONAL OTOLOGICAL CONGRESS.†

THE Transactions of the Sixth International Otological Congress, held in London from August 8th to 12th of this year, under the Presidency of Professor Urban Pritchard, contain a large number of papers of the utmost value, not only to Ear Specialists, but to general practitioners of medicine and surgery. In a collection containing over 80 original communications, to say nothing of reports of the discussions to which they gave rise, it is obviously impossible to offer any detailed criticism, and it must be for each reader to pick out those which have for him a special interest. Many of the papers are published in French and German, and some of these are of great interest. No small proportion, however, are in English, and there is therefore plenty of material for those who have no knowledge of foreign languages. We especially commend the numerous papers on the subject of Mastoid Disease to the notice of surgeons.

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* Medical and Surgical Nursing. Edited by H. J. O'Brien, M.D., Professor of Clinical Surgery, Hamline University. New York and London: G. P. Putnam's Sons. 1900.

† Transactions of the Sixth International Otological Congress. Edited under the direction of the Editorial Committee, by E. Cresswell Baber, Hon. Secretary General. London: The Southern Publishing Company Limited. 1900.

Correspondence.

HISTOLOGY OF THE BLOOD.

BY EHRLICH AND LAZARUS.

(TRANSLATED BY W. MYERS, M.A., M.B.)

SIR,—On reading the careful and appreciative notice of the above work, by Dr. Douglas Stanley, which appeared in last month's *Review*, I note that the translator's attention is not called to a serious error which occurs in the description of Jenner's stain on p. 44.

The formula for making up this very beautiful and sensitive dye is given correctly enough, but is not followed by any directions whatever as to how to use the same. This alone is a matter for regret, as tending to prevent the more extended use of a real improvement in the staining of blood-films. But lower down comes the astonishing statement—" Fixation is effected by heat."

Now, considering that one great advantage gained by using

Jenner's stain is that ***the absolute alcohol contained therein fixes the film at once (so that no separate fixation previous to staining is required)***, this is most misleading.

Anyone who will take the trouble to refer to my paper on "Examination of the Blood as an Aid to Diagnosis," in the October number of this ***Review***, will find (on p. 198) Dr. Louis Jenner's own instructions for ensuring success with this method. Unless these are carried out to the letter, failure is sure to result.

However, the meagre description of this important staining process to be found in the work of Ehrlich and Lazarus has in it one saving clause, which states that "The stain may be obtained from R. Kanthack, 18, Berners Street, London, ready for use." No doubt that obliging and trustworthy purveyor of microscope requisites sees to it that ***full directions*** accompany each bottle of stain. If he does not, there will be trouble.

T. LAW WEBB.

New Books, etc., Received.

From Baillière, Tindall & Cox.—
- The Australasian Medical Directory and Handbook. Edited and compiled by Ludwig Bruck. Fifth Edition.

From J. and A. Churchill—
- Vasectomy Relative to Prostatic Disorders and Catheter Life, and Report to the Thirteenth International Congress of Medicine on Urethro-Stenosis. By Reginald Harrison, F.R.C.S.

From Longman, Green and Co.—
- A Manual of Surgical Treatment. By W. Watson Cheyne, M.B., F.R.C.S., F.R.S., and F. F. Burghard, M.D., and M.S. (Lond.), F.R.C.S. Part IV.

From J. P. Putnam's Sons—
- Medical and Surgical Nursing. Edited by H. J. O'Brien, M.D.

From J. B. Baillière et Fils—
- Catalogue Générale de Livres de Sciences.

From John Wright and Co.—

Golden Rules of Skin Practice. By David Walsh, M.D., Edin.

From the National Association for the Prevention of Consumption and other forms of Tuberculosis -

Tuberculosis. October, 1900.

From Young J. Pentland—

Gynæcological Operations, exclusive of those interfering with the Peritoneal Cavity. By Skene Keith, M.B., F.R.C.S., Ed.

From Rebman Limited—

Practical Gynæcology. By E. E. Montgomery, M.D.

Certification and Classification of "Diarrhœa" Deaths.

From H. K. Lewis—

Transactions of the Dermatological Society of Great Britain and Ireland. Edited by William T. Freeman, M.D., F.R.C.S, and Charles Herbert Thompson, M.D. Volume the Sixth, 1899-1900.

What to do in Cases of Poisoning. By William Murrell, M.D., F.R.C.P. Ninth Edition.

From Smith, Elder and Co.

On some Cirrhoses of the Liver. By Walter Butler Cheadle, M.A., M.D. Cantab.

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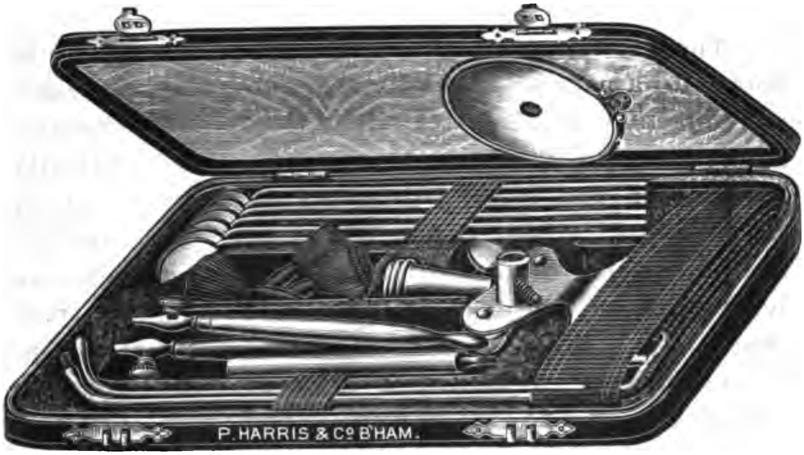
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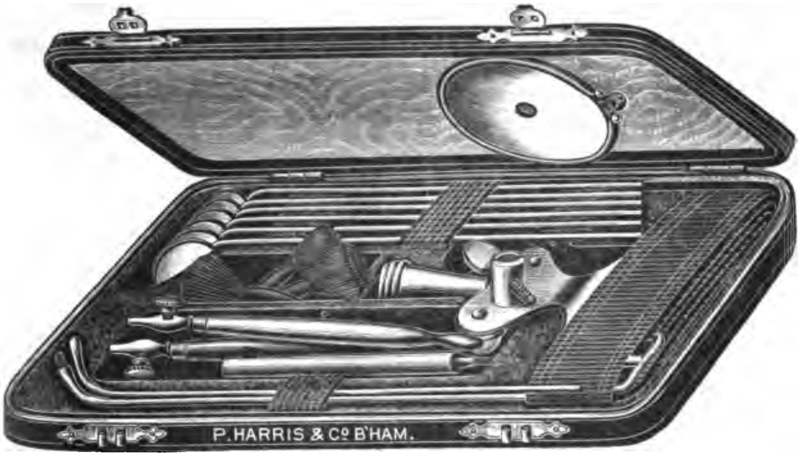
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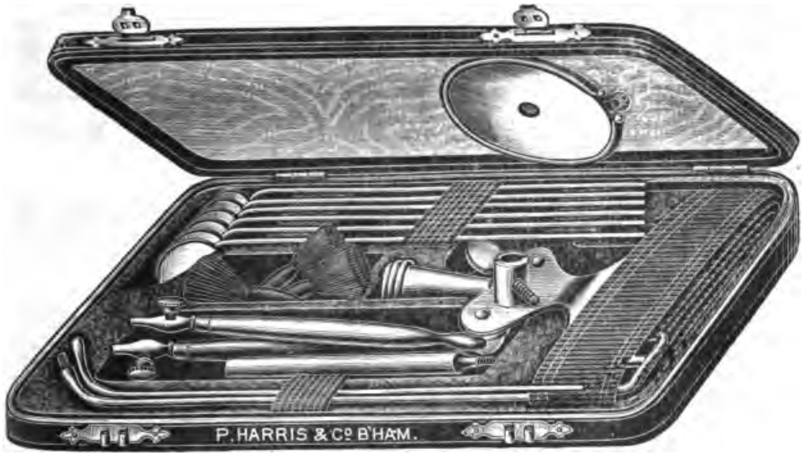
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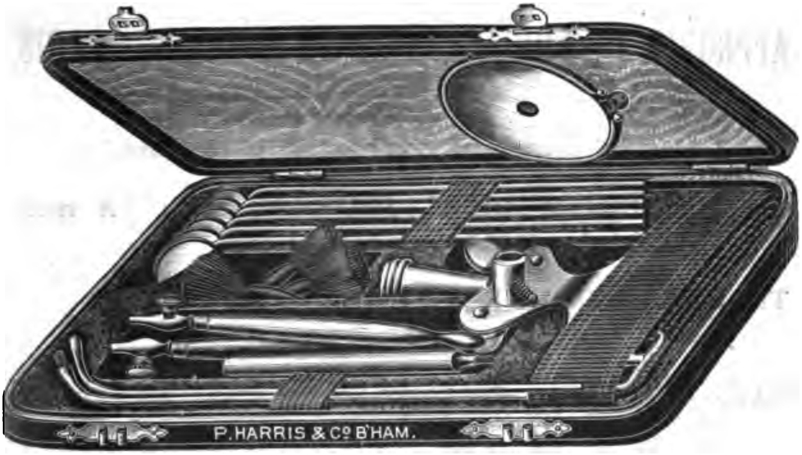
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